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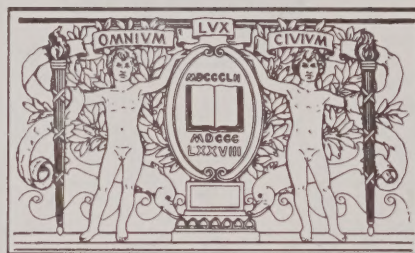
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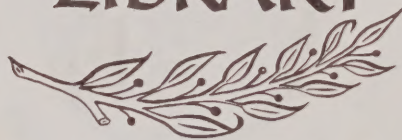
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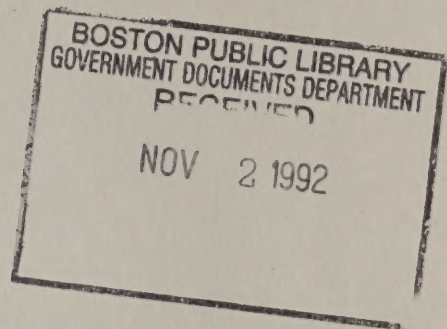
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**City of Boston**

**Request for Developers Of  
A Waste to Energy Project**

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maps in envelope



City of Boston  
Kevin H. White, Mayor

Public Works Department  
Joseph F. Casazza, Commissioner







CITY OF BOSTON

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REQUEST FOR DEVELOPERS OF A WASTE-TO-ENERGY PROJECT

April 25, 1983

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4 maps accompany

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LIST OF EXHIBITS  
(Exhibits Attached Separately)

- Exhibit A: South Bay Incinerator Site Plan Drawing
- Exhibit B: Map of Boston Edison District Heating System Steam Distribution System
- Exhibit C: Load Duration Curve for Boston Edison District Heating System
- Exhibit D: Description of Chemical Control Systems for Boston Edison District Heating System
- Exhibit E: Relationship Between South Bay Incinerator Site and Suggested Tie-In Point to District Heating System
- Exhibit F: Aerial Map





## GLOSSARY

Where these terms are initial-capitalized in the Request for Developers, the definition given in this Glossary is intended.

**BUSINESS PROPOSAL:** The volume of the proposal responding to the instructions given in subsection 2.6 of this Request for Developers.

**CITY:** The City of Boston, Massachusetts.

**CITY WASTE:** The waste collected by the City, City agencies, and private firms operating under collection contracts with the City, which will be delivered to the facility.

**DEVELOPER:** The qualified firm(s) or organization(s) responding to this Request for Developers with which the City selects to enter into a Service Agreement.

**DISTRICT HEATING SYSTEM:** The Boston Edison district heating system as described in subsection 4.1 of this Request for Developers.

**EDISON:** The Boston Edison Company.

**FINANCING PLAN:** The plan as delineated in subsection 2.6.6 of this Request for Developers, which the Proposer must submit to establish that the project can be financed.

**PROPOSER(S):** The qualified firm(s) or organization(s) responding to this Request for Developers.

**SCHEDULED SERVICE DATE:** The date certain on which the Developer guarantees to commence the waste-disposal service to the City.

**SERVICE AGREEMENT:** The contractual terms for the disposal service offered by the Developer to the City.

**SERVICE FEE:** The per-ton disposal price offered by the Developer to the City.

**STATE:** The Commonwealth of Massachusetts.

**TECHNICAL PROPOSAL:** The volume of the proposal responding to the instructions given in subsection 3.4 of this Request for Developers.





## LIST OF ACRONYMS AND ABBREVIATIONS

BACT:	Best available control technology
CPI-U:	The Consumer Price Index-All Urban Consumers as reported by the Bureau of Labor Statistics
DEQE:	The Massachusetts Department of Environmental Quality Engineering
DPU:	The Massachusetts Department of Public Utilities
EIR:	State Environmental Impact Report
ENF:	Environmental Notification Form
ER:	Energy rate
EPA:	The U.S. Environmental Protection Agency
FY:	Fiscal year
HHV:	Higher heating value
LAER:	Lowest achievable emission rate
MBTA:	The Massachusetts Bay Transportation Authority
MDC:	The Metropolitan District Commission
PILOT:	Payment in lieu of taxes
PURPA:	The federal Public Utility Regulatory Policies Act of 1978
PWD:	The City of Boston Public Works Department
RFD:	Request for Developers
TPD:	Tons per day
TPY:	Tons per year
WFI:	Wheelabrator-Frye, Inc.





## 1. OVERVIEW

The City of Boston (City) is seeking proposals from qualified firms and organizations who will develop, construct, own, operate, and maintain a waste-to-energy facility within Boston. At a minimum, the Developer's facility must be able to provide a 20-year disposal service for City Waste. The amount of City Waste disposed of in fiscal year (FY) 1981/1982 was approximately 216,000 tons. The Developer may propose a facility sized to process up to 660,000 TPY of waste. Either a mass-burning or a prepared-fuel/dedicated boilers technology may be proposed, provided that the Proposer can supply supporting evidence that the technology has been commercially demonstrated at the unit size being proposed. Powdered, densified, and wet prepared fuels are not acceptable.

It is the Developer's responsibility to secure: waste supply contracts with other suppliers if the facility at the proposed size will process waste in excess of City Waste; the market(s) for the energy produced by the facility; the site for the facility if a site other than that being offered by the City is proposed; and landfill capacity for residue and unprocessed waste from the facility. The Developer will also be responsible for arranging for private ownership of the facility and the project financing.

This Request for Developers (RFD) was prepared under the direction of the Commissioner of Public Works, City of Boston, with assistance from the City Treasurer, the City Corporation Counsel, Government Finance Associates, and CSI Resource Systems, Inc.

### 1.1 RFD ORGANIZATION

Section 2 of this RFD, Business and Financing Arrangements, specifies: the City's commitments; the Developer's overall responsibilities; the City's Service Agreement requirements; the requirements for the Developer's business arrangement with an energy market and options for an energy market; the Developer's options for arranging for a facility site; the requirement to obtain landfill capacity; and instructions for preparing the Business Proposal, which will include a draft Service Agreement and a Financing Plan.

Section 3, Technical Requirements and Design Information, indicates the minimum technical requirements for the Developer's facility, provides data on City Waste, gives background information on key environmental requirements, and provides instructions for preparing the Technical Proposal.

Section 4 provides technical information on the Boston Edison District Heating System for Proposers electing to pursue this market





option, and information on the site that the City is offering (the South Bay Incinerator site).

## 1.2 PROPOSAL SUBMISSION REQUIREMENTS

Proposals submitted in response to this RFD will be organized in two volumes: Volume I: Business Proposal (including a Financing Plan and a draft Service Agreement); and Volume II: Technical Proposal. Thirty copies of Volumes I and II must be submitted to:

Mr. Joseph Casazza  
Commissioner of Public Works  
City of Boston  
City Hall, Room 714  
Boston, Massachusetts 02201.

Each volume must be typed or printed (double-spaced) on 8 1/2" by 11" size paper. Each volume must be paginated.

The proposal submission date will be 90 days, or the first working day following the 90th day, after the official issuance date of this RFD. The City will send a written notice to all recipients of this RFD informing them of the official RFD issuance date and the resulting proposal submission date. Any proposal received after 4:00 p.m. local time on the proposal submission date will not be considered by the City. The only acceptable evidence of receipt is a signed receipt form from the City.

## 1.3 CITY'S RIGHTS AND OPTIONS

This RFD constitutes only an invitation to make proposals to the City. The City reserves, holds, and may in its sole discretion exercise the following rights and options with respect to this RFD:

1. To select and enter into a Service Agreement with the Developer whose proposal best satisfies the interests of the City and is most responsive to this RFD, and not necessarily on the basis of price alone or any other single factor.
2. To reject any or all proposals.
3. To supplement, amend, or otherwise modify this RFD, and to cancel this RFD with or without the substitution of another RFD.
4. To issue additional subsequent solicitations for proposals, to conduct investigations with respect to





the qualifications of each Proposer, and to hold public hearings with respect to the merits of each proposal.

5. To negotiate with Proposers for amendments or other modifications to their proposals.
6. To not enter into agreements as contemplated by this RFD.

#### 1.4 EXPENSES OF PROPOSAL PREPARATION

Each proposal prepared in response to this RFD will be prepared at the cost and expense of the Proposer, and with the express understanding that there will be no claims whatsoever for reimbursement from the City for the cost or the expense of its preparation. Nor will there be any claims whatsoever for reimbursement from the City for any costs, or expenses incurred by the selected Developer, except as explicitly provided for in the Service Agreement.

#### 1.5 CONFIDENTIAL INFORMATION

Proposals submitted in response to this RFD may contain technical or other data whose public disclosure would cause substantial injury to the Proposer's competitive position or constitute a trade secret. To protect these data from disclosure, the Proposer should specifically identify the pages of the proposal that contain such information by properly marking the appropriate pages and inserting the following notice in the front of its proposal:

##### NOTICE

The data on pages \_\_\_\_ of this proposal, identified by an asterisk (\*) or marked along the margin with a vertical line, contain information that is a trade secret and/or disclosure of which would cause substantial injury to the Proposer's competitive position. The Proposer requests that such data be used only for the evaluation of the proposal, but understands that disclosure will be limited to the extent that the City determines is proper. If a Service Agreement is awarded to this Proposer, the City will have the right to use or disclose the data as provided in the Service Agreement.

The City will make every effort to protect these data from disclosure, but will not be held liable for any damage or injury which may result from any disclosure that may occur.



## 2. BUSINESS AND FINANCING ARRANGEMENTS

The following subsections address: the basis for the business arrangement and the Financing Plan; the Service Agreement requirements; arrangements for an energy market; arrangements for a facility site; arrangements for landfill capacity; and instructions for preparing the Business Proposal.

### 2.1 BASIS FOR BUSINESS ARRANGEMENT AND FINANCING PLAN

The City has issued this RFD as a basis for a Developer to organize, design, build, own, operate, and maintain a waste-to-energy facility within the City of Boston that provides a long-term disposal service for City Waste. The City believes that the commitments it is prepared to make to a waste-to-energy project establish a sound foundation on which an economically viable project can be organized.

In the City's view, structuring and executing the project is the primary responsibility of the Developer. The Developer, therefore, is being given substantial flexibility in determining facility design, structuring contractual relationships with participants in the project other than the City, and arranging private ownership and project financing, consistent with offering the City a waste-disposal service that is technically, economically, and environmentally sound.

#### 2.1.1 CITY'S COMMITMENTS

The commitments that the City is prepared to make to the project follow:

- The City will deliver all of the waste that it collects or has collected under private contracts (City Waste) to the Developer's facility for a term of service of at least 20 years.
- Pursuant to the Developer's bid and agreement on final terms, the City will pay a fixed Service Fee, subject to escalation, for each ton of waste it delivers. The City will guarantee delivery of a minimum of 165,000 tons of waste each year over the term of service and will pay an annual fee based on this minimum tonnage, even if the City fails to deliver this minimum amount (i.e., the City will make a put-or-pay commitment).
- The City will accept adjustment in its fixed Service Fee for change-in-law circumstances that require modifications to or new equipment at the facility and





affect the Developer's cost of facility construction and/or operation.

- The City will offer the South Bay Incinerator site to the Developer should the Developer choose to rely on the City for the facility site. To the extent permitted by law, the City will make its best efforts to acquire contiguous properties that may be required to accommodate the Developer's facility at this site.
- Consistent with the Developer's Financing Plan, the City will issue any tax-exempt bonds required for project financing. However, such issuance will not entail any obligation by the City to pledge its credit or assets to repay these bonds.

#### 2.1.2 DEVELOPER'S RESPONSIBILITIES

In organizing and structuring the project, the Developer has the responsibility for designing, constructing, operating, and maintaining the facility; arranging financing and private ownership of the facility; securing an energy market and site; and securing the landfill capacity required to support the project. The Developer is responsible for all costs or expenses associated with construction and operation of the facility, including the interconnection costs to sell energy to the selected energy market(s). The Developer is also responsible for acquiring and complying with all federal, State, and local environmental and other permits.

In exercising these responsibilities, the Developer has the flexibility to:

- Design the facility with capacity to process waste in excess of that supplied by the City, and contract with other parties to secure the additional waste that will be processed.
- Develop an energy market that is best suited to its project requirements.
- Elect a different site (provided such site is located in the City) as an alternative to that offered by the City in this RFD.
- Structure contractual arrangements for energy sales, non-City waste supply, landfill disposal, private ownership, and financing, consistent with the provision of a competitively priced waste-disposal service to the City.





If required by the Developer's Financing Plan, the City is prepared to issue tax-exempt bonds for financing solid waste disposal facilities pursuant to the statutory powers granted it under Massachusetts General Laws Chapter 40 D. The security that the City will pledge to support project financing is limited to the Service Agreement, under which it will guarantee delivery of a minimum annual waste tonnage and payment of a Service Fee (i.e., make a put-or-pay guarantee).

The City will have no ownership interest in the facility and assumes that the Developer will structure a private ownership arrangement to facilitate project financing and improve project economics. The City's interest in the ownership arrangement is limited to the impact of owner's equity on reducing its Service Fee. The City will not participate in any arrangement requiring indemnification by the City as a result of loss of any tax benefits to the private owner.

The Proposer's Financing Plan will conform to both the commitments which the City is prepared to make and the City's Service Agreement requirements. The Financing Plan will also provide evidence that: (1) sufficient security will be pledged to the project to accomplish financing; and (2) the Proposer has the financial capability to undertake the obligations required by the City's Service Agreement and assume the attendant liabilities over the term of the agreement.

## 2.2 WASTE-DISPOSAL SERVICE AGREEMENT REQUIREMENTS

The Service Agreement will be based on the following statements of policy that define the City's requirements for service, economic benefit, and financial protection.

### 2.2.1 TERM OF SERVICE

The Developer will provide the City with a waste-disposal service for a period of at least 20 years from the Scheduled Service Date. The Service Agreement may be renewed for two consecutive 5-year periods at mutually agreed-to terms and conditions.

### 2.2.2 COMMENCEMENT OF SERVICE

The Developer will guarantee that service will commence by a date certain. The Developer will specify the number of months that will elapse from the effective date of the Service Agreement to the Scheduled Service Date. As of the Scheduled Service Date, the Developer will have an unconditional obligation to provide the waste-disposal service either by accepting all City Waste or, if the facility is not operating, by assuming the financial consequences of alternative disposal arrangements for City Waste.



In the event of delays in construction that prevent operation of the Developer's facility by the Scheduled Service Date, the City will have the option of either continuing its existing disposal arrangements or delivering City Waste to an alternative site offered by the Developer which the City deems acceptable. Regardless of which alternative is elected by the City, the Developer will be responsible for paying to the City any difference between the cost of these disposal arrangements (including haul cost and disposal fee) and the Developer's Service Fee.

If the facility is not operating by the Scheduled Service Date, the Developer will take all necessary steps to establish regular service at the facility as soon as possible. Once regular service has commenced, the Developer will have a continuing obligation for the term of the Service Agreement to accept City Waste at the facility and maintain the facility in good working order.

#### 2.2.3 DELIVERY OF WASTE

The facility will receive City Waste delivered in packer trucks and other delivery vehicles deemed suitable by the City. City Waste will be received during the hours of 7:00 a.m. and 5:00 p.m., Monday through Saturday. The City will, however, require that provisions be made for extension of these hours during emergency conditions and to accommodate special collections. The City will also want assurances that delivery hours for collectors of commercial waste in Boston will be consistent with any regulations that the City may establish with respect to collection of commercial waste.

The City will seek assurances that traffic impacts at the site will be minimized and that City delivery vehicles will have ready access to the facility, with turnaround times minimized.

#### 2.2.4 PAYMENT OF SERVICE FEE

The City will pay the Developer a Service Fee for each ton of waste it delivers to the facility. The City guarantees to deliver a minimum of 165,000 tons of City Waste per year to the facility and make a minimum annual payment equal to the product of the minimum tonnage guarantee and the per-ton Service Fee in that year. City Waste deliveries exceeding the minimum tonnage guarantee will be accepted at the facility, and the per-ton Service Fee will be charged for any excess City Waste.

Each year after the proposal submission date, the Service Fee will be subject to increases or decreases according to a fraction of the rate of change in a mutually agreed-to index or indices [e.g., the Consumer Price Index-All Urban Consumers as reported by the Bureau of Labor Statistics (CPI-U)].





The Service Fee charged to the City will not be more than the price charged by the Developer to any other municipality to whom the Developer may offer regular disposal service at the facility.

#### 2.2.5 ADJUSTMENTS IN THE SERVICE FEE DUE TO CHANGE IN LAW

In the event of a change in law that increases the facility's construction and/or operation costs, the City will accept an adjustment in the Service Fee provided that:

- Applicable change-in-law events are limited to those that require modifications to or new equipment at the facility and affect facility construction and/or operation costs.
- Any adjustment in the City's Service Fee will be based solely on the pro-rata cost attributable to the waste-processing capacity of the facility that is used for City Waste.

The adjustment formulae to be used will be contractually defined for circumstances during the period of design through the Scheduled Service Date and for circumstances during the period of operations. Any adjustment will be subject to contractually defined notification requirements and third-party certification.

#### 2.2.6 PAYMENT IN LIEU OF TAXES

Starting on the Scheduled Service Date, the Developer will make to the City an annual payment in lieu of taxes (PILOT) for each ton of waste (including City Waste) delivered to the facility. The Developer will bid the amount of the PILOT, which will be at least \$1.00 per ton. Each year after the proposal submission date, the PILOT will increase or decrease at 100 percent of the rate of change in the CPI-U.

### 2.3 ARRANGEMENTS FOR AN ENERGY MARKET

The Developer's general responsibilities are described, followed by a discussion of the three energy market options and the specific requirements under each option.

#### 2.3.1 GENERAL RESPONSIBILITIES

Under the project structure proposed by the City, it is the Developer's responsibility to make contractual arrangements for the sale of energy produced by the facility. These arrangements will





provide for an energy sales contract(s) with sufficient security to protect the integrity of the City's Service Fee and to meet the requirements of the Developer's Financing Plan. In making the contractual arrangements with the energy market, the Developer must understand that: (1) under the City's waste-disposal Service Agreement with the Developer, the City will be held harmless of all liability resulting from nonperformance (including termination) by all parties to the energy sales contract; and (2) energy revenue fluctuations over the term of the Service Agreement will not be a basis for adjustments in the City's Service Fee.

### 2.3.2 ENERGY MARKET OPTIONS

There are three energy market options available to Proposers:

1. A steam-generating facility (which may be designed to cogenerate) can be built to supply steam to the Boston Edison District Heating System.
2. An electricity-generating facility (which may be designed to cogenerate) can be built to supply power to an electricity market, which could include Boston Edison and the Massachusetts Bay Transportation Authority (MBTA).
3. A steam-generating facility (which may be designed to cogenerate) can be built to supply steam to an industrial or commercial energy user.

#### 2.3.2.1 Sale of Steam to Boston Edison District Heating System

Boston Edison has expressed a strong interest in developing a waste-to-energy project as a source of steam for its District Heating System, as evidenced by its letter agreement to proceed to investigate with Wheelabrator-Frye, Inc. (WFI) codevelopment of a waste-to-energy facility supplying steam to this system. Edison has recently represented to the City that it is engaged in negotiations with WFI to form a joint venture to develop the project. The City understands, therefore, that Edison may submit a proposal in which it is the codeveloper of a waste-to-energy project to dispose of City Waste.

The City has communicated to Edison its intention to conduct a competitive solicitation for a Developer and to select the Developer that the City deems is offering a Service Agreement in its best interest. Because Edison represents an attractive steam market, the City has asked Edison to consider the purchase of steam for its District Heating System in the event that Edison submits a proposal as a codeveloper and the City selects a Developer other than an Edison joint venture.



Edison has represented that, under its agreement with WFI, it is bound not to enter into negotiations with another party unless it terminates negotiations with WFI. However, Edison has acknowledged that, if Edison proposes as a codeveloper and the City selects a Developer other than an Edison joint venture, it is willing to purchase steam up to the level of its steam requirements from that Developer at a price that compares favorably to Edison's alternative cost of steam production. However, Edison will not guarantee a minimum steam demand for the District Heating System under a long-term agreement.

The City, therefore, is informing Proposers that they may elect to propose a steam-generating facility to supply steam to the District Heating System. In order to offer the City a Service Agreement that includes a fixed Service Fee, Proposers who elect this option should assume that:

- Steam will be priced based on a 10-percent discount off of Edison's avoided fuel production cost. On the basis of Edison's fuel cost of steam production over the 12-month period ending September 1982, its avoided fuel production cost equates to a discounted steam price of \$6.20 per thousand pounds at specified steam conditions.
- A long-term purchase agreement will be negotiated with Edison on a take-and-pay basis (i.e., with no minimum purchase guarantee).

The City recognizes that, if it selects a Developer other than an Edison joint venture, the negotiation of a steam purchase contract between that Developer and Edison may result in contractual arrangements based on other than the above assumptions. As a consequence, the Developer's bid Service Fee may change. For this reason, the City requires that Proposers electing this market option also submit a Service Fee bid for the sale of electricity only from the same size facility (see subsection 2.3.2.2).

Proposers who elect the District Heating System option will find data in subsection 4.1 of this RFD on Edison's system operations and technical requirements, including the fuel production cost data that are the basis for the assumed steam price given above.

In the event that Edison submits a proposal wherein it is a codeveloper, the City will treat the Service Fee bid included in Edison's proposal as firm and not subject to change resulting from Edison's transfer pricing arrangements for steam or any other factors affecting energy revenues.





### 2.3.2.2 Sale of Electricity

Electricity produced by a qualifying facility can be sold to Edison under regulations promulgated by the Massachusetts Department of Public Utilities (DPU) pursuant to the Public Utility Regulatory Policies Act of 1978 (PURPA). Under DPU regulations, avoided cost energy rates (ER) are filed by each utility with the DPU according to the following formula:

$$ER = [\text{avoided fuel cost/kWh} + \text{avoided O\&M/kWh} + \text{NEPEX savings share}] \times (1 + \text{line loss factors}).$$

Unless otherwise instructed by Edison, Proposers should not assume that capacity credits will be available to qualifying facilities.

The energy rates filed by Edison for purchased power at 14 KV for the most recent 16 months beginning with January 1982 are listed in Table 2.1. Rates are filed by Edison based on the production cost for the previous month(s), as part of its fuel adjustment filings.

While Edison is obligated to buy electricity from qualifying facilities under PURPA at the filed rates, DPU regulations do not require utilities to enter into long-term purchase agreements. However, there are precedents for long-term contracts between qualifying facilities and other utilities in Massachusetts. Both New England Electric Company and Commonwealth Electric Company have signed long-term agreements for purchased power from qualifying facilities at approximately 90 percent of their respective filed avoided cost energy rates. The Edison official who should be contacted regarding electricity purchase arrangements is B. H. Weiner, Vice President, Energy Supply Organization (617-424-2545).

The MBTA has indicated an interest in entering into electricity purchase agreements with private parties who build power production facilities to meet MBTA electricity requirements. The MBTA official who should be contacted regarding electricity purchase arrangements is James O'Leary, General Manager (617-722-5176).

Proposers electing the electricity market option must submit as part of their Business Proposal a letter of intent to purchase electricity signed by the energy market.

### 2.3.2.3 Sale of Steam to Industrial/Commercial Users

The City considers the industrial/commercial energy user category to be broadly inclusive of all types of industries, institutions, and other large commercial steam users.

Proposers electing this market option must include as part of their Business Proposal a letter of intent to purchase steam signed by the energy market.



TABLE 2.1  
RECENT ENERGY RATES FILED BY  
EDISON (¢/kWh)\*

MONTH	PEAK**	OFF-PEAK
Jan	6.63	3.87
Feb - Apr	7.702	4.746
May - July	6.13	3.944
Aug - Oct	7.27	4.16
Nov - Jan	5.06	4.34
Feb - Apr	5.98	4.20

\* For purchased power at 14 KV.

\*\* Peak hours are Monday through Friday, 8:00 a.m. to 9:00 p.m.;  
off-peak hours are all others.





## 2.4 ARRANGEMENTS FOR FACILITY SITE AND A SITE LEASE

Proposers may elect to use either the South Bay Incinerator site being offered by the City or an alternative site, provided that such alternative site is located within the City and is demonstrated to be within the control of the Proposer.

### 2.4.1 SITE OTHER THAN CITY-OFFERED SITE

If the Proposer elects to obtain an alternative site, it must present evidence that the site is: (1) within its control via an option agreement or the legal equivalent; and (2) technically suitable. The City reserves the right to review and approve any alternative site proposed.

### 2.4.2 CITY-OFFERED SITE

For Proposers choosing to use the site offered by the City, background information on this site is contained in subsection 4.2. The existing City-owned site is 3+ acres in size, not including street rights-of-way. If the Developer requires land in addition to that owned by the City (as determined by the facility layout and site plot plan included in the Developer's Technical Proposal), the City will make its best efforts, to the extent permitted by law, to acquire the additional property needed to accommodate the Developer's facility at this site.

The assembled South Bay Incinerator site will be conveyed by the City to the Developer under a lease arrangement providing for the following:

- A lease term consistent with project financing.
- An annual site capacity payment (i.e., rent payment) to the City calculated according to the following formula:  
 $\$0.50/\text{ton} \times \text{the facility's rated ton-per-day (TPD) capacity} \times 365 \text{ days}$ . This payment will start at the beginning of the lease term and, thereafter, will increase or decrease at 100 percent of the rate of change in the CPI-U.

## 2.5 ARRANGEMENTS FOR LANDFILL CAPACITY

The City recognizes that operation of the waste-to-energy facility will require landfill capacity for the ongoing disposal of facility residue (e.g., ash) and disposal of unprocessed waste in the event the facility is unable to process and/or store waste during periods of forced or planned outage. The City, therefore, expects that the



Developer will obtain landfill capacity sufficient for such disposal purposes over the life of the project (i.e., under long-term contract).

## 2.6 INSTRUCTIONS TO PROPOSERS FOR PREPARING BUSINESS PROPOSALS

The Business Proposal will indicate the Proposer's capability to implement the project; its willingness to offer the City a Service Agreement consistent with the City's service requirements; and its financial capability to undertake the project, make the guarantees required by the City, and assume the attendant financial liabilities. The Business Proposal must therefore demonstrate that:

- The draft Service Agreement is consistent with the Proposer's Financing Plan and the City's service requirements.
- Sufficient waste (if any is required in addition to City Waste) will be contractually committed to assure the economic performance of the project at the proposed facility size.
- Contractual arrangements for the sale of energy from the project are sufficiently secure to assure the economic and financial integrity of the project.
- If an alternative to the South Bay Incinerator site is proposed, this site is under the control of the Proposer.
- Contractual arrangements for landfill capacity are sufficient to ensure that the residue and unprocessed waste disposal requirements of the project will be provided for.
- The Financing Plan is supported by the economics of the project and can be implemented.
- The Proposer has the financial capability necessary to undertake the obligations required by the City's Service Agreement and assume the attendant liabilities over the term of the agreement.

Proposers will provide evidence of the above by filling out the applicable forms provided in subsection 2.6.8 and including in their proposals supporting documentation and submittals as described below.





### 2.6.1 DRAFT SERVICE AGREEMENT

The Proposer will submit a draft Service Agreement in a form suitable for execution as a contract between the City and the Developer. The Service Agreement must be responsive to the City's service requirements as delineated in subsection 2.2 and consistent with the Proposer's Financing Plan provided as part of its Business Proposal.

The draft Service Agreement will be submitted with a cover letter (see Form A provided in subsection 2.6.8) signed by the Chief Executive Officer of the organization acting as Developer. If the Proposer is a wholly or partially owned subsidiary of another company, Form A must be signed by the Chief Executive Officer of the parent company or his authorized designee. If the Proposer is a joint venture, Form A must be signed by the Chief Executive Officers of the joint venture members.

### 2.6.2 ACQUISITION OF ADDITIONAL WASTE

If a facility sized to process waste in addition to City Waste is proposed, the Proposer will complete Form B (provided in subsection 2.6.8), which will summarize the sources of additional waste to be supplied to the project and the quantity of waste to be committed. To establish that this waste will be contractually committed to the project, the Proposer will also submit a letter of intent from each organization representing the waste sources identified on Form B. The letter of intent will be signed by the organization's Chief Executive Officer or another duly authorized individual and will address the following:

- The guarantees to be made for the annual waste supply to the project and the attendant penalties in the event of a shortfall.
- The term of the waste supply agreement.
- The basis on which disposal service fees will be adjusted as an result of an applicable change-in-law occurrence.
- The per-ton fee to be charged (if the non-City source of waste supply is a municipality).

In the event the Proposer is unable to establish that all of the excess capacity will be contractually committed, the Proposer must provide demonstration that the uncommitted capacity will not affect the cost and availability of the waste-disposal service to the City.



### 2.6.3 ENERGY PURCHASE COMMITMENT

Depending on the energy market option elected by the Proposer, it will submit the appropriate documentation as described below:

#### 1. Boston Edison District Heating System:

- a. If Edison submits a proposal as joint-venture Developer, Edison and its partners will submit a letter indicating that Edison and its partners guarantee that the City's Service Fee as bid will not be subject to adjustment for any reason related to fluctuations in energy revenues over the term of the agreement. The letter of intent must be signed by the respective Chief Executive Officers of the firms constituting the joint venture.
- b. If the Proposer is electing to sell steam to Edison for use in its District Heating System with such a proposal based on the assumed purchase terms represented by the City in subsection 2.3.2.1 of this RFD, documentation on steam purchase terms is not required.

The Proposer must also submit an alternative Service Fee bid for a project of the same size selling electricity only and must include a letter of intent from the electricity buyer as described below.

#### 2. Electricity Market Option:

If the Proposer is electing to sell electricity, the Proposer must submit a letter of intent signed by the Chief Executive Officer of the organization that is making the purchase commitment or an official certified to be duly authorized to enter into the type of contract proposed.

The letter of intent will specify the following:

- The pricing formula that is the basis of the sales transaction.
- The term of the agreement.
- The form of the minimum purchase guarantee offered.

#### 3. Industrial/Commercial Steam Market Option:

If the Proposer is electing to sell steam to an industrial or commercial user other than Boston Edison, the Proposer must submit a letter of intent signed by the Chief Executive Officer





of the organization that is making the purchase commitment or an official certified to be duly authorized to enter into the type of contract proposed.

The letter of intent will specify the following:

- The pricing formula that is the basis of the sales transaction.
- The term of the agreement.
- The form of the minimum purchase guarantee offered.
- The technical standards for minimum product quality, quantity, and delivery requirements.

#### 2.6.4 SITE

Proposers electing to use the City-offered South Bay Incinerator site must indicate the annual site capacity payment to be made to the City (see Form A in subsection 2.6.8).

Where an alternative to the South Bay Incinerator site is proposed, the Proposer must submit a deed, site option agreement, or the legal equivalent establishing that the site is either owned by the Proposer or under its control.

#### 2.6.5 LANDFILL CAPACITY

If provision of landfill capacity via an existing landfill(s) is proposed, the Proposer must submit a letter of intent from the owner/operator of a licensed landfill(s) delineating the responsibility of the owner to provide landfill capacity to the project. A completed Form C signed by the landfill owner/operator (provided in subsection 2.6.8) must also be submitted.

If provision of landfill capacity via a new landfill is proposed, the Proposer must fill out Form C as applicable, which must be signed by the owner of the proposed landfill site. In addition, at a minimum, the Proposer must provide evidence that assigned land use for a landfill and required zoning are in-place.

#### 2.6.6 FINANCING PLAN

The Proposer must submit a Financing Plan as part of its Business Proposal. The Financing Plan will be in narrative form with supplementary information provided as requested. The Financing Plan



will describe, in as much detail as possible, the sources and uses of funds, as well as the financing structure and all assumptions utilized in the formulation of the funds statement and the financing structure (see Form D in subsection 2.6.8). In addition, the required project capitalization will be provided by filling out Form E (see subsection 2.6.8).

#### 2.6.6.1 Sources and Structure of Project Financing

The Proposer will discuss the mix of long-term debt and equity that will be used to capitalize the project. Sufficient detail will be provided concerning the sources of such funding, especially regarding commitments that have already been received. The Proposer's financing/underwriting team will be identified and will provide its written concurrence with the Financing Plan.

In addition, the structure of the financing will be discussed in detail. This discussion will identify the roles and commitments of the various parties in the credit arrangements necessary to support financing and will specify security or guarantees that these parties will pledge to the project. The interrelationship between the various project contracts and the project financing must also be explained. Of special interest is the use of the waste supply and energy sales contracts to support project financing. Finally, the Financing Plan must include a schedule of activities leading to and including the closing of the financing.

#### 2.6.6.2 Uses of Project Financing

The Proposer will discuss in detail the categories of capital requirements necessary to implement the project, as well as the financing and other assumptions used for such determination. The methods and timing of the funds flow into the project must be described, as well as the expected drawdown of funds during the construction period. The interest rate assumed for the long-term debt must be provided, as well as the reinvestment rate for reserve funds. Any cash flows to the equity investor prior to the commercial operation of the facility must also be identified. A diagram of the flow of funds during the construction period must be included as support to this narrative description.

The City recognizes that market interest rates could fluctuate between the time when the Service Fee is bid and permanent financing is obtained. If a change in the assumed interest rate for the long-term debt financing would cause an adjustment to be made to the Service Fee as bid in the draft Service Agreement, the Proposer must provide the specific methodology for making such an adjustment.





#### 2.6.7 FINANCIAL CAPABILITY

The Proposer will submit information demonstrating its financial capability to develop the project, support the financing, and perform the contracts. In a supplementary appendix to the Business Proposal, the Developer must provide its published Annual Reports and 10-Qs and 8-Ks since its last 10-K. Any Proposer not required to file 10-Ks or 10-Qs with the Securities and Exchange Commission must submit equivalent information and disclosures that have been certified by legal counsel as to their accuracy. If the Proposer is a joint venture or other arrangement between two or more parties, such information and disclosures must be submitted for each party to the arrangement. If applicable, this information must also be provided for the Proposer's parent company(s).

The Proposer will also obtain a bid bond for an amount equal to 100 percent of the value of the Service Agreement in the first year of facility operations. The value of the Service Agreement in the first year of facility operations will be calculated as the City's minimum tonnage guarantee (i.e., 165,000 TPY) times the Proposer's bid Service Fee. In lieu of obtaining a bid bond as described above, Proposers will obtain a bid bond for an amount equal to 10 percent of the estimated facility capital cost.

#### 2.6.8 BUSINESS PROPOSAL FORMS

Forms A, B, C, D, and E follow, to be completed (as appropriate) by the Proposer and submitted as part of its Business Proposal.



BUSINESS PROPOSAL FORM A

SAMPLE COVER LETTER FOR THE SERVICE AGREEMENT  
(to be typed onto company letterhead)

Dear Mr. Mayor:

Herewith we are submitting a draft Service Agreement which we are prepared to execute with the City.

As delineated in the Agreement and in our proposal, we will make the following commitments to the City:

1. Our bid Service Fee is \$ \_\_\_\_\_ per ton, which will change annually from the proposal submission date at a fraction of the rate of increase or decrease in the \_\_\_\_\_ index or indices. Our bid fraction is \_\_\_\_.
2. The formulae to be used for Service Fee Adjustment resulting from applicable change-in-law circumstances are:
  - a. \_\_\_\_\_ during the period of design through Scheduled Service Date; and
  - b. \_\_\_\_\_ during the period of operations.
3.
  - a. Our bid Service Fee is not subject to adjustment because of changes in market interest rates prior to permanent financing; or
  - b. Our bid Service Fee is subject to adjustment because of changes in market interest rates prior to permanent financing according to the following mechanism:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.
4. We will commence service under the terms of this Agreement on the 1st day of the \_\_\_\_\_ month after execution of the Service Agreement (the Scheduled Service Date), at which time we will assume an unconditional obligation for responsibility to dispose of City Waste.
5. Our bid PILOT is \$ \_\_\_\_/ton, which will change annually at a rate equal to 100 percent of the rate of increase or decrease in the CPI-U from the proposal submission date.
6. The term of the service is \_\_\_\_ years from the Scheduled Service Date.





BUSINESS PROPOSAL FORM A (continued)

7. The rated capacity of the facility is \_\_\_\_ TPD.
8. a. We will utilize the South Bay Incinerator Site, and the annual site capacity payment will be \$ \_\_\_\_ (calculated as \$0.50/ton x \_\_\_\_ TPD of rated capacity x 365 days), which will change annually at 100 percent of the CPI-U from the beginning of the lease; or
- b. We will utilize an alternative site located at \_\_\_\_.
9. The energy market(s) is \_\_\_\_\_.

By \_\_\_\_\_  
Chief Executive Officer

By \_\_\_\_\_  
Chief Executive Officer



BUSINESS PROPOSAL FORM B  
ACQUISITION OF ADDITIONAL WASTE\*

---

SOURCE OF  
ADDITIONAL TONNAGE\*\*

TONNAGE  
COMMITMENT (TPY)

---

- 1.
- 2.
- 3.
- 4.
- 5.

---

\* To be filled out by Proposers proposing a project size greater than that needed to process City Waste alone.

\*\* Letters of intent from the respective sources must also be provided.





BUSINESS PROPOSAL FORM C

LANDFILL CAPACITY\*

If more than one landfill is required to provide sufficient landfill capacity for the facility, information must be provided for each landfill, using separate copies of this form.

1. Name of Landfill:

\_\_\_\_\_

2. Owner/Operator's Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Location of Landfill:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Area:

- Total acreage owned, optioned, or contracted \_\_\_\_\_
- Acreage currently permitted by State \_\_\_\_\_
- Acreage remaining on current permit \_\_\_\_\_

5. Capacity (tonnage, volume, or average depth):

- Total acreage owned, optioned, or contracted \_\_\_\_\_
- Acreage currently permitted by State \_\_\_\_\_
- Acreage remaining on current permit \_\_\_\_\_

6. a. State Permit (include copy of permit or permit application and copy of latest State inspection report).

b. Land Use Assignment and Zoning (for new landfills include evidence of land use assignment from the City of Boston Environmental Health Service and required zoning).

\_\_\_\_\_  
\* To be filled out as appropriate depending on whether Proposers are proposing to use an existing landfill or a new landfill.



BUSINESS PROPOSAL FORM C (continued)

7. Which waste types are currently accepted; which are excluded?

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8. Suggested route and travel time from the waste-to-energy facility to the landfill:

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9. A letter-of-intent from the landfill owner/operator has been provided as part of our Business Proposal.

Current Landfill or Property Owner/  
Operator

---

Type Name

---

Date

---





BUSINESS PROPOSAL FORM D

FINANCING ASSUMPTIONS

LONG-TERM DEBT\*

Date of Financing: \_\_\_\_\_

Interest Rate: \_\_\_\_\_

Principal Amortization  
Period: \_\_\_\_\_ Years

Capitalized Interest Period: \_\_\_\_\_ Months

Design through Scheduled  
Service Date: \_\_\_\_\_ Months

Annual Debt Service Payments: \_\_\_\_\_/Year

Reinvestment Rates:

- Construction Fund \_\_\_\_\_%
- Reserve Funds \_\_\_\_\_%
- Other Funds \_\_\_\_\_%

Drawdown Schedule for all  
Funds on Monthly Basis Provide as attachment

EQUITY

Schedule of Equity Flow into  
Project on Monthly Basis Provide as attachment

---

\* If the Proposer intends to make use of short-term construction financing, the same information must also be provided.



BUSINESS PROPOSAL FORM E  
SOURCES AND USES OF PROJECT FINANCING

SOURCES

Equity Investment: \$ \_\_\_\_\_  
Investment Earnings: \_\_\_\_\_  
TOTAL: \$ \_\_\_\_\_

USES

Project Development Expense: \$ \_\_\_\_\_  
Design: \_\_\_\_\_  
Construction: \_\_\_\_\_  
● Buildings \_\_\_\_\_  
● Equipment \_\_\_\_\_  
● Other \_\_\_\_\_  
Debt Issuance Expense: \_\_\_\_\_  
Equity Placement Expense: \_\_\_\_\_  
Capitalized Interest: \_\_\_\_\_  
Reserve Fund Requirements: \_\_\_\_\_  
TOTAL: \$ \_\_\_\_\_



### 3. TECHNICAL REQUIREMENTS AND DESIGN INFORMATION

In the following subsections, information is provided on: the minimum technical requirements for the facility; City Waste; and key environmental requirements. In addition, instructions are provided for preparing the Technical Proposal.

#### 3.1 MINIMUM TECHNICAL REQUIREMENTS

The minimum technical requirements for the project follow:

1. The waste-to-energy facility must utilize either mass-burning or prepared-fuel/dedicated boilers technology and be shown to be commercially demonstrated at the unit size being proposed. Powdered, densified, and wet prepared fuels are not acceptable.
2. The facility must be sized to be at least capable of processing City Waste. The amount of City Waste disposed of in FY 1981/1982 was approximately 216,000 tons. The facility may be sized to process up to 660,000 TPY of waste.
3. The facility must include at least two but no more than four furnaces/boilers.
4. If a prepared-fuel/dedicated boilers system is proposed, the facility must include at least two processing lines, each capable of processing 100 percent of the waste.
5. The facility must be designed to minimize traffic impacts at the site, to facilitate delivery vehicle access, and to minimize delivery vehicle turnaround times.
6. In selecting the cooling tower design (if a cooling tower is required), due consideration must be given to minimizing drift and preventing fogging and icing problems on surrounding highways and thoroughfares.
7. In stack height design, due regard must be given to proximity to Logan Airport and to Federal Aviation Administration restrictions.
8. The facility must include waste storage and transfer capability sufficient to assure that the facility can





provide a disposal service for City Waste on a 52-week-per-year basis over the term of the Service Agreement.

9. Landfill capacity must be provided to assure disposal of residue and unprocessed waste from the facility over the term of the Service Agreement.
10. The facility must be designed and constructed to comply with all applicable industrial codes, and all applicable code requirements of the American Society of Mechanical Engineers and other technical societies, either as stated or standard in industrial practice.
11. The facility must be designed, constructed, and operated in compliance with all federal, State, and local environmental and other permits.
12. The facility must be constructed and operated in compliance with all applicable Occupational Safety and Health Administration requirements, good engineering practice, and federal, State, and local laws and regulations. Fire protection systems must be provided in accordance with National Fire Protection Association codes, insurance underwriter requirements, good engineering practice, and all local codes.

### 3.2 CITY WASTE DATA

Information is provided below on City Waste tonnage and delivery.

#### 3.2.1 WASTE TONNAGE

The City contracts with private firms to collect and dispose of residential waste from the 11 Public Works Department (PWD) districts in the City (see Figure 3.1 for a map of these districts).

The City provides collection services to all residential households, including large apartment buildings where the owner meets City standards for 6-cubic-yard collection boxes. The amount of this waste from all PWD districts is approximately 200,000 TPY (see Table 3.1). The tonnage data given in this table are based on weigh records maintained at the various disposal sites to which the collection contractors deliver the collected waste. It is anticipated that the annual tonnage of City residential waste will be reduced by approximately 5 percent as a result of the new returnable container law now in force.



- 29 -  
FIGURE 3.1

Geographic Relationships of Collection Districts within City Limits  
[ 46 square miles ]







TABLE 3.1

TONNAGE OF WASTE COLLECTED AND DISPOSED OF  
FOR THE CITY BY COLLECTION CONTRACTORS FOR  
LAST 2 FISCAL YEARS\* (TONS)

MONTH	FY 1980/1981	FY 1981/1982
July	18,700	19,200
August	18,100	17,800
September	18,800	19,100
October	19,000	18,700
November	17,000	18,200
December	18,200	17,300
January	17,300	14,500
February	16,100	14,300
March	17,800	18,100
April	20,200	18,500
May	19,800	18,800
June	<u>19,900</u>	<u>21,500</u>
TOTAL	220,900 TPY	216,000 TPY

\* Fiscal year runs from July through June.



The City awards separate contracts for collection and disposal of waste from each of the 11 PWD districts. Each collection contractor delivers waste to a designated disposal site under contract to the City. As of the Scheduled Service Date, the City will arrange to have collection contractors deliver waste to the facility.

In addition, the City collects approximately 7,000 TPY of waste from public areas within the City. Commercial and industrial entities make separate arrangements for collection and disposal of their waste.

### 3.2.2 WASTE DELIVERY

Table 3.2 provides information on use of collection vehicles within each of the 11 PWD districts. This information is based on current contracts between the City and the various collection contractors. The collection contractors operate from 7:00 a.m. to 3:30 p.m., either 5 or 6 days per week.

## 3.3 KEY ENVIRONMENTAL REQUIREMENTS

The information provided below assumes a facility size of at least 600 TPD. This information is included to provide Proposers with a general basis for developing a permitting plan and schedule. The requirements discussed may not be all-inclusive and do not reflect any site-specific environmental requirements that may also have to be addressed depending on the Proposer's planned site for the facility. Moreover, there are several permitting issues that Proposers may want to seek resolution on prior to submitting their proposals.

### 3.3.1 SUMMARY

The facility will be subject to all federal, State, and local environmental laws and regulations. A federal environmental impact statement will not be required.

The current policy of the Massachusetts Office of Environmental Affairs is to require the preparation of an Environmental Impact Report (EIR) for a resource recovery facility having a processing capacity in excess of 300 TPD. The Massachusetts Environmental Policy Act requires that, when applying for permits from the Massachusetts Department of Environmental Quality Engineering (DEQE), the applicant must notify the Secretary of Environmental Affairs of such an application. Upon receipt of a completed Environmental Notification Form (ENF), the Secretary has 30 days to review the ENF and determine whether or not an EIR is required.

The major anticipated permit and approval requirements are listed in Table 3.3. No permits can be issued by the DEQE until: (1) either a



TABLE 3.2  
TRUCK USAGE FOR COLLECTION IN 11 PWD DISTRICTS\*

PWD DISTRICT	NO. OF TRUCKS UTILIZED PER DAY	NO. OF DAYS PER WEEK TRUCKS OPERATE
1A	1 or 2	5
1B	7	6
2	3	5
3	4	5
4	4	5
5	3	5
6	4	5
7	7	5
8	3	5
9	2	5
10	5	6

\* Trucks are in service from 7:00 a.m. to 3:30 p.m.





TABLE 3.3

ANTICIPATED MAJOR PERMIT AND APPROVAL REQUIREMENTS

PERMIT/APPROVAL	ISSUING AGENCY
AIR PERMIT	
State Air Permit (includes federal PSD requirements)	DEQE, Air Quality Division
WATER PERMITS	
1. MDC/City Industrial User Sewer Permit	MDC and Boston Water and Sewer Commission
2. State Industrial User Sewer Permit	DEQE
LAND USE	
Assignment of Land for Use for Waste-to-Energy Facility	City of Boston Environmental Health Service
NOISE PERMIT	
City Noise Permit	City of Boston Air Pollution Control Commission



negative determination regarding the need for an EIR is made by the Office of Environmental Affairs, or an EIR is approved by the Office of Environmental Affairs; and (2) the City of Boston Environmental Health Services has assigned the land at the site for use for a waste-to-energy facility. All of the permits listed in Table 3.3 must be obtained prior to commencing construction.

There is no regulatory agency that provides a permit coordinating function.

### 3.3.2 AIR QUALITY PERMITTING

The City is currently classified as an attainment area for particulates, sulfur dioxide ( $\text{SO}_2$ ), nitrogen oxides ( $\text{NO}_x$ ), carbon monoxide (CO), and lead. It is classified as a nonattainment area for ozone (volatile organic compounds).

The facility will be classified as a municipal incinerator. Because potential emissions of attainment pollutants are expected to exceed 100 TPY, the facility will be a major source subject to federal Prevention of Significant Deterioration (PSD) requirements administered by DEQE. The permit applicant must demonstrate that best available control technology (BACT) will be utilized for all controlled emissions exceeding U.S. Environmental Protection Agency (EPA)-defined de minimis levels, and that the facility will be in compliance with ambient air quality standards and PSD increments. Proposers should seek resolution of the need for air quality monitoring with DEQE (this requirement depends on site location).

BACT will at least include particulate removal to achieve an emission level of no greater than 0.05 grains per dscf at 12-percent  $\text{CO}_2$ . Proposers should seek a definition from DEQE of what BACT requirements will include.

In addition to the PSD requirements, DEQE stipulates that, for potential emissions equal to or exceeding 100 TPY of a nonattainment pollutant, the facility must comply with the emissions offset and nonattainment review regulations promulgated by DEQE. For waste-to-energy facilities, DEQE can grant a postponement for complying with the offset provisions if the permit applicant demonstrates that emissions offsets are not immediately available. Once the offsets become available, they must be secured without delay. The air permit application also requires submission of facility plans, specifications, the proposed standard operating procedure, and the proposed maintenance procedure. The applicant must also demonstrate that facility emissions will not result in State or national ambient air quality standards being exceeded.

Visible emission requirements stipulate that opacity must not exceed 20 percent at any time. In addition, the requirements stipulate that





fugitive dust must be controlled by seeding, paving, covering, wetting, or otherwise treating to prevent excessive emissions of particulate matter.

In accordance with NESHAPS, beryllium emissions must not exceed 10 grams each 24-hour period.

The DEQE regulations require that provisions be made for stack testing, including adequate entry, sampling ports, staging areas, ladders, and a suitable power source. DEQE will specify to the applicant which, if any, pollutants require continuous monitoring of stack emissions.

DEQE and EPA have established good engineering practice regulations for stack height.

Table 3.4 summarizes the anticipated stack emission/control requirements.

### 3.3.3 WATER QUALITY PERMITTING

Wastewater can be discharged to the City sanitary or combined sewer system (the type of sewer system is site-specific). The discharge must conform to Metropolitan District Commission (MDC) and DEQE regulations. Permits for such a discharge are issued: (1) jointly by MDC and the Boston Water and Sewer Commission, and (2) by DEQE. Pollutant-specific discharge limitations are decided on a case-by-case basis in accordance with guidelines for heavy metals, pH, oil and grease, chlorides, sulfates, arsenic, and boron.

Stormwater cannot be discharged to a sanitary sewer system. It can only be discharged to a storm sewer system or, if separate sewers do not exist, to the combined sewer system.

### 3.3.4 LAND USE

The City of Boston Environmental Health Service must assign land use at the prospective site for a resource recovery facility (Commonwealth of Massachusetts, Manual of Laws Relating to Public Health, Chapter 150 A & B). This process will require a public hearing. DEQE cannot issue any permits until such land assignment has been made.



TABLE 3.4

SUMMARY OF ANTICIPATED STACK EMISSION/  
CONTROL REQUIREMENTS FOR POLLUTANTS

POLLUTANT	EMISSION LIMITATIONS/CONTROL
Particulates	BACT* (no greater than .05 grains/dscf @ 12% CO <sub>2</sub> ) 20% opacity**
SO <sub>2</sub>	BACT*
NO <sub>x</sub>	BACT*
CO	BACT*
VOC	LAER (lowest achievable emission rate)
Beryllium	10 grams/24 hours

\* If particulate, SO<sub>2</sub>, NO<sub>x</sub>, and CO emissions significantly impact a nonattainment area, then LAER, rather than BACT, becomes the emission control.

\*\* Requirements stipulate that opacity shall not exceed 20 percent at any time.



### 3.3.5 NOISE PERMITTING

A noise permit must be obtained from the City of Boston Air Pollution Control Commission for the construction and operation of the facility. The City has specific regulations for the control of noise.

### 3.3.6 SOLID WASTE

A permit is not required from the Solid Waste Division of DEQE for the construction and operation of a waste-to-energy facility. All residue and unprocessed waste from the waste-to-energy facility must be disposed of in an approved sanitary landfill.

### 3.3.7 ODOR

While there are no permit requirements for odor emissions, the State and the City have adopted regulations governing such emissions.

## 3.4 INSTRUCTIONS TO PROPOSERS FOR PREPARING TECHNICAL PROPOSALS

### 3.4.1 GENERAL

The Technical Proposal must contain sufficient detail to describe the technical design and operation of the facility. The Technical Proposal will consist of narrative descriptions; diagrams, drawings, a schedule; and data forms.

### 3.4.2 ORGANIZATION OF THE TECHNICAL PROPOSAL

The Technical Proposal will be prepared and submitted in accordance with the outline shown on Table 3.5. Instructions for preparing each section of the Technical Proposal shown in the outline are given in the following subsections. Proposers will provide the information as requested and as applicable to their proposed facility.

#### 3.4.2.1 Narrative Descriptions (II-1)

3.4.2.1.1 Energy Market Information. The Proposer will first specify which of the three energy market options it has selected (see subsection 2.3.2). The Proposer will then supplement Form A (provided in subsection 3.4.3) with a discussion of how the facility will meet the energy user's contractually stipulated performance





TABLE 3.5  
OUTLINE FOR TECHNICAL PROPOSAL VOLUME

II-1	Narrative Descriptions <u>(as applicable)</u>
	A. Energy Market Information
	B. Site Information
	C. General Facility Design and Operation
	D. Project Management Approach
	E. Operating and Management Approach
	F. Maintenance Program Approach
	G. Environmental Permitting
	H. Availability Analysis
	I. On-Site Traffic Handling Design
	J. Waste Storage Capacity Analysis
	K. Prepared-Fuel Storage Capacity Analysis
	L. Residue Storage Capacity Analysis
	M. Waste Transfer Capability
	N. Steam Transmission Line
	O. Electricity Interconnection
	P. Architectural Treatment
	Q. Proposer Qualifications
II-2	Diagrams, Drawings, and Schedule <u>(as applicable)</u>
	A. Simplified Facility Diagram
	B. Mass Flow Diagram
	C. Energy Balance Diagram
	D. Heat Balance Diagram
	E. Site Plot and Utility Plan
	F. Equipment General Arrangements and Elevations
	G. Process Control and Electrical Distribution Diagrams
	H. Steam Interconnection Diagram
	I. Electricity Interconnection Diagram
	J. Architectural Rendering
	K. Schedule
II-3	Data Forms <u>(as applicable)</u>



requirements, and the expected production levels for steam and/or electricity. In addition, the operating relationship between the waste-to-energy facility and the energy user's plant must be described.

3.4.2.1.2 Site Information. The Proposer will first indicate whether it has elected to use the City-offered site (the South Bay Incinerator site) or an alternative site. The Proposer must then discuss the rationale for the location of the facility within the selected site and the benefits of this location. In addition, the Proposer must describe the proposed traffic route to the facility.

If the Proposer has elected an alternative site, it must complete Form B (provided in subsection 3.4.3). In addition, the Proposer must discuss the technical suitability of the site and submit the results of all technical evaluations and engineering reports in regard to the alternative site. The Proposer must also discuss site zoning and surrounding land uses.

3.4.2.1.3 General Facility Design and Operation. The Proposer will discuss the design and operation of the various systems and equipment that are being offered. The Proposer must describe the equipment to be used, stating size, capacity, and other pertinent design data necessary to convey a clear description of the facility. This discussion will refer to the simplified facility diagram (see subsection 3.4.2.2.1), state how various components are to be operated, and describe the integration of the operation and control of the entire facility. Particular attention will be paid to the methods of: (1) receiving, storing, preparing (if applicable), and feeding waste into the furnaces; (2) completing and controlling combustion within the furnaces; (3) controlling steam conditions and flow to the turbine and/or steam conditions and flow to the steam user; (4) sustaining high furnace/boiler efficiencies; (5) complying with emission regulations; and (6) maintaining personnel safety.

3.4.2.1.4 Project Management Approach. The Proposer will discuss the project management approach to be used during the design through the Scheduled Service Date. The Proposer's plan for staffing, meeting management requirements, and implementing management controls must be included. The Technical Proposal will include an organization chart listing necessary positions by skill and the number of people required for each organizational element.

3.4.2.1.5 Operating and Management Approach. The Proposer will discuss the operating and management approach to be used during operations. The Proposer's plan for staffing, meeting management requirements, and implementing management controls must be included. The Technical Proposal must also include an organization chart (as above), as well as the Proposer's accounting procedures for monitoring and recording the waste stream into the facility; unprocessed waste and residue streams out of the facility; steam



and/or electricity sold to the energy users; and any recovered materials sold.

The Proposer must provide a budgetary estimate of operating and maintenance costs (see Form C provided in subsection 3.4.3). These costs will be given for the first year of operation and will include haul and disposal costs for unprocessed waste, unprocessibles, and residue to the landfill.

3.4.2.1.6 Maintenance Program Approach. The Proposer will discuss the plan and procedures for all routine and long-term maintenance of facility equipment.

3.4.2.1.7 Environmental Permitting. In this discussion, the Proposer will provide a statement of its ability to comply with all environmental regulations and limitations stated in subsection 3.3, as well as any site-specific or otherwise applicable environmental regulations. The Proposer will also provide an environmental permitting plan, including a schedule. Finally, the Proposer will provide the environmental data requested on Form D (see subsection 3.4.3).

3.4.2.1.8 Availability Analysis. The Proposer will complete the availability data sheets for the boilers/furnaces, and, if applicable, for the front-end processing lines and the turbine-generator set (see Forms E through G provided in subsection 3.4.3). The Proposer will discuss the methodology and basis used to prepare the availability data sheets. In this discussion, reference to existing operating plant data must be provided.

3.4.2.1.9 On-Site Traffic Handling Design. The Proposer will discuss its procedures for handling vehicle traffic within the site as well as on the tipping floor, and for assuring that City delivery vehicles will have ready access.

The Proposer will state the total time required (in minutes) for an incoming vehicle to be weighed, unload onto the floor or into the pit, and be weighed empty once. The time can be expressed as a range or as a maximum and minimum. The assumptions or data used to arrive at this turnaround time will be provided. The discussion will confirm that sufficient tipping bays are provided to support the Proposer's stated vehicle traffic and turnaround time.

3.4.2.1.10 Waste Storage Capacity Analysis. The Proposer will discuss the facility's waste storage capacity and indicate the minimum amount of storage to be provided. The storage area must be clearly defined in the equipment general arrangement drawings (see subsection 3.4.2.6.6). All assumptions (e.g., pile height and density) used to develop the indicated storage capacity must be provided.





3.4.2.1.11 Prepared-Fuel Storage Capacity Analysis. The Proposer will discuss the facility's prepared-fuel storage capacity and indicate the minimum capacity to be provided. The storage area must be clearly defined in the equipment general arrangement drawings (see subsection 3.4.2.6.6). All assumptions used to develop the storage capacity must be provided.

3.4.2.1.12 Residue Storage Capacity Analysis. The Proposer will describe the residue storage system. The storage area must be clearly defined in the drawings. All assumptions used to determine the amount of residue storage must be provided.

3.4.2.1.13 Waste Transfer Capability. The Proposer will discuss the methods by which the facility will provide for the transfer of waste during periods of prolonged plant shutdown in order to assure disposal of City Waste 52 weeks per year.

3.4.2.1.14 Steam Transmission Line. The Proposer will discuss in detail the routing and the design, including the type of support structure, proposed for the steam transmission line. The Proposer must confirm that it will meet all interconnection requirements.

3.4.2.1.15 Electricity Interconnection. The Proposer will describe in detail the location and type of electrical transmission line and equipment for interconnection to the user. The Proposer must confirm that the proposed interconnection design is based on discussions with the energy market.

3.4.2.1.16 Architectural Treatment. The Proposer will discuss the plans for providing the site preparation and finishing requirements. The discussion will refer to the architectural rendering (see subsection 3.4.2.2.9). The Proposer will discuss the materials and types of construction to be used for the buildings.

3.4.2.1.17 Proposer Qualifications. The Proposer will provide:

- Evidence that the technology is commercially demonstrated at the unit size proposed.
- Detailed information on its experience with respect to the technology at the unit size proposed.

The Proposer must also provide information on its experience on similar projects, including the design, construction, construction management, turnkey, full-service, and operating aspects of these projects. For each project, the Proposer must provide the following information:

- A. The facility and its location.
- B. The processing capacity of the facility (in TPD or TPY).



- C. Facility performance characteristics.
- D. The Proposer's role in the project (e.g., design, construction, operation).
- E. The project sponsor or Proposer's client.
- F. When the project was initiated.
- G. Current facility status.
- H. A discussion of: (1) any delays in construction and reasons for such delays; and (2) any extended shutdowns, reasons for such shutdowns, and corrective action taken.
- I. Major milestones actually achieved.
- J. Current plant manager, including business address and telephone number.

Finally, the Proposer must submit information on the relevant experience of the entities who will perform:

- Project management and procurement (design through Scheduled Service Date)
- Facility design
- Air pollution control and equipment design
- Construction management
- Project management (operations).

The Proposer will avoid providing extraneous information. Company brochures and sales materials will be kept to a minimum.

#### 3.4.2.2 Diagrams, Drawings, and Schedule (II-2)

3.4.2.2.1 Simplified Facility Diagram. The Proposer will submit a simplified facility diagram showing all of the functions included in the conversion of waste to energy. The diagram must also indicate major process control elements.

3.4.2.2.2 Mass Flow Diagram. A mass flow diagram must be provided to account for all mass entering and leaving the waste-processing system, the steam-generating system, and the electricity-generating and auxiliary systems (if applicable). The diagram will be presented



to show clearly the individual mass flow streams through the systems in pounds per hour (except for generator outputs, which will be given in kW). At a minimum, the following streams must be accounted for:

- Inputs:
  - Waste
  - Prepared fuel (if applicable)
  - Fossil fuel (if any)
  - Combustion air (at 80°F)
  - Chemicals for water treatment.
- Outputs:
  - Unburned combustibles in residue
  - Processing rejects (if applicable)
  - Bottom ash (dry and wet)
  - Fly ash
  - Emitted particulate
  - Flue gas
  - Process wastewater
  - Steam
  - Electricity (if applicable)
  - Recovered materials (if applicable).

The flow diagram will indicate inputs and outputs based on both the rated capacity of the facility and the average daily throughput. The ultimate analysis given in Table 3.6 will be used in developing the flow diagram.

If an extraction-condensing turbine-generator is proposed where steam is extracted for sale, the mass flow around the turbine-generator must indicate for the same boiler outlet the following two cases:

1. Maximum auto-extraction steam flow to the steam user and minimum condenser flow (lb/hr).
2. Zero auto-extraction steam flow to the steam user and maximum condenser flow (lb/hr).





TABLE 3.6  
ULTIMATE ANALYSIS  
(as-received and as-fired)

---

% by Weight	
<hr/>	
Moisture	22.00
Noncombustibles and Ash	28.00
Carbon	24.70
Hydrogen	3.50
Oxygen	21.00
Nitrogen	0.50
Sulfur	0.10
Chlorine	<u>0.20</u>
TOTAL	100.00%
<hr/>	
HHV	4,500 Btu/lb
<hr/>	



Generator outputs for each case will be given in kW and will indicate gross electricity production, electricity used in-house, and electricity sold to the electricity user. The steam flows will be taken from the heat balance diagram (see subsection 3.4.2.2.4).

The mass flow diagram must be accompanied by sufficient calculations, field data, analytic assumptions, and clearly identified engineering assumptions to permit verification of the Proposer's claim of system performance.

3.4.2.2.3 Energy Balance Diagram. The Proposer will provide an energy balance diagram. The energy balance will account for all the energy inputs and outputs for the facility on a Btu-per-hour basis and will be based on the ultimate analysis given in Table 3.6.

At a minimum, the following streams must be accounted for:

- Inputs:
  - Waste
  - Prepared fuel (if applicable)
  - Fossil fuel (if any)
  - Purchased power.
- Outputs:
  - Steam to energy user
  - Gross electricity (if applicable)
  - Electricity to energy user (if applicable)
  - Energy losses in combustion process
  - Energy losses in steam cycle.

The balance will use an ambient air temperature of 80°F and a raw water temperature of 50°F.

The energy balance around the turbine-generator set (if applicable) will indicate for the same boiler outlet the following two cases:

1. Maximum auto-extraction steam flow to the steam user, minimum condenser flow, and corresponding gross electricity production and electricity sold to the electricity user (Btu/hr).



2. Zero auto-extraction steam flow to the steam user, maximum condenser flow, and corresponding gross electricity production and electricity sold to the electricity user (Btu/hr).

3.4.2.2.4 Heat Balance Diagram. The Proposer will provide a detailed heat balance (steam cycle) diagram clearly depicting flow, state, pressure, temperature, and enthalpy for each stream. The diagram will include the complete thermodynamic cycle beginning with treated makeup water and ending with delivered steam and/or electricity and will be based on the ultimate analysis given in Table 3.6. All steam usage will be accounted for in pounds per hour and will include, at a minimum:

- Throttle flow
- Turbine extractions (if applicable)
- Boiler blowdown
- Auxiliary equipment drives
- Plant heating
- In-plant condensate return
- Soot blowing
- Deaerator load
- Condensate return from steam user (if applicable).

The heat balance diagram will be based on both the rated capacity of the facility and the annual average throughput.

If applicable, the heat balance around the turbine-generator set will indicate for the same boiler outlet the following two cases:

1. Maximum auto-extraction steam flow to the steam user and minimum condenser flow (lb/hr).
2. Zero auto-extraction steam flow to the steam user and maximum condenser flow (lb/hr).

3.4.2.2.5 Site Plot and Utility Plan. The Proposer will provide a site plot plan showing the location of the facility within the site. The site plot plan will locate scales, the roadway(s) entering and exiting the site, the parking area, the steam line routing (if applicable), and the electrical substation (if applicable); and will provide the outline of all buildings (processing, administration, etc.) and all major equipment, including air pollution control





equipment, stacks, and cooling tower (if applicable). Waste, prepared fuel (if applicable), and residue storage will also be shown. In addition, the site plot plan will depict truck traffic flow, and show all existing easements, property lines, and grades.

If the South Bay Incinerator site is selected and adjacent parcels are required to accommodate the facility at this site, the Proposer must include an additional site plan utilizing the site plan drawing (1" = 50 ft) provided in Exhibit A. This plan must clearly indicate the extent of the facility's site boundary and any additional parcels of land that are required. See subsection 4.2 for a discussion on utilization of additional parcels.

The Proposer must also provide a utility plan showing routing and points of connection with all the necessary utilities. Line sizes must be clearly indicated.

3.4.2.6.6 Equipment General Arrangements and Elevations. The Proposer will provide complete equipment general arrangements and elevations drawn to scale and dimensioned to clearly indicate the location of all major equipment systems, buildings, scales, etc.

If applicable, the steam transmission line from the facility to the tie-in point with the energy user must also be shown in plan view.

3.4.2.2.7 Process Control and Electrical Distribution Diagrams. The Proposer will provide process control diagrams that describe the combustion control logic and indicate the electrical and instrumentation hardware used. The diagrams must show how steam quality, condition, and flow control is integrated with furnace combustion controls.

3.4.2.2.8 Steam Interconnection Diagram. The Proposer will provide a diagram showing the steam transmission line from the facility to the tie-in point with the energy user.

3.4.2.2.9 Electricity Interconnection Diagram. The Proposer will provide a diagram showing the distribution of power from the generator bus to the energy user.

3.4.2.2.10 Architectural Rendering. The Proposer will provide a clear and realistic artist's rendition showing the facility's architectural relationship to the surrounding environment.

3.4.2.2.11 Schedule. The Proposer will provide a complete project schedule for the design through the Scheduled Service Date.

### 3.4.3 TECHNICAL PROPOSAL FORMS (II-3)

The Proposer must complete Forms A through G, as applicable.



TECHNICAL PROPOSAL FORM A

ENERGY MARKET

1. Name of Energy Market: \_\_\_\_\_  
Manufactured Products (if applicable): \_\_\_\_\_
2. Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Name and Address of any Parent Company: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Name and Telephone Number of Contact at Energy Market: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Energy Product(s) to be Sold:
  - a. Steam: Quantity: avg. \_\_\_\_\_ lbs/hr; peak \_\_\_\_\_ lbs/hr;  
minimum \_\_\_\_\_ lbs/hr  
Conditions: \_\_\_\_\_ psig; \_\_\_\_\_ °F
  - b. Electricity: Peak Demand \_\_\_\_\_ kW
6. Current Energy Use by Market:
  - a. Steam: \_\_\_\_\_  $10^6$  lb/yr
  - b. Electricity: \_\_\_\_\_  $10^6$  kWh/yr
7. Fuel Use by Market:
  - a. Fuel oil: Type \_\_\_\_\_  
Amount \_\_\_\_\_  $10^6$  gal/yr  
Current Price \$ \_\_\_\_\_ /gal
  - b. Natural gas: Amount \_\_\_\_\_  $10^6$  mcf/yr  
Current price \$ \_\_\_\_\_ /mcf



TECHNICAL PROPOSAL FORM A (continued)

8. Description of Existing Power Plant:

- a. Boilers: Number \_\_\_\_\_; Steam conditions \_\_\_\_\_; Output \_\_\_\_\_
- b. Turbine-Generator: Number \_\_\_\_\_; Type \_\_\_\_\_





TECHNICAL PROPOSAL FORM B

ALTERNATIVE SITE\*

1. Current Owner: \_\_\_\_\_
2. Address: \_\_\_\_\_
3. Location: \_\_\_\_\_  
\_\_\_\_\_
4. Area Available for Waste-to-Energy Facility: \_\_\_\_\_ sq ft
5. Current Zoning: \_\_\_\_\_  
\_\_\_\_\_
6. Proximity to Energy Market: \_\_\_\_\_  
\_\_\_\_\_
7. Is site in a designated wetlands, coastal zone, or another specially designated area? \_\_\_\_\_  
\_\_\_\_\_
8. Have borings and soils investigation been conducted? Yes: \_\_\_\_\_  
No: \_\_\_\_\_

\_\_\_\_\_

\* Results of technical evaluations and engineering reports must also be provided.



TECHNICAL PROPOSAL FORM C

BUDGETARY ESTIMATE OF OPERATING AND MAINTENANCE COSTS

ELEMENT	COST (\$000)	PERCENT OF TOTAL
1. Process Plant Operating Personnel		
a. Administrative and Support (No. of Employees ____)	_____	_____
b. Process Plant Supervisory (No. of Employees ____)	_____	_____
c. Process Plant Operating (No. of Employees ____)	_____	_____
d. Process Plant Maintenance (No. of Employees ____)	_____	_____
2. Utilities (as applicable)		
a. Electricity	_____	_____
b. Water	_____	_____
c. Gas	_____	_____
d. Oil	_____	_____
e. Sewer	_____	_____
f. Other	_____	_____
3. Process Plant Maintenance		
a. Supplies	_____	_____
b. Repair parts	_____	_____
c. Other	_____	_____
4. Raw Materials	_____	_____



TECHNICAL PROPOSAL FORM C (continued)

	COST (\$000)	PERCENT OF TOTAL
5. Contract Services	_____	_____
6. Equipment Rentals or Leases	_____	_____
7. Unprocessed Waste and Residue Disposal	_____	_____
8. Major Equipment Replacement Reserve	_____	_____
9. Insurance Expenses for:		
<u>Type of Policy</u>	<u>Coverage Limits</u>	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
10. Miscellaneous	_____	_____
TOTAL COST	_____	100. _____





TECHNICAL PROPOSAL FORM D

EQUIPMENT DESCRIPTION

1. As-Received Waste Storage Capacity: \_\_\_\_\_ tons
2. Number of Cranes for Retrieval of Waste: \_\_\_\_\_
3. Front-End Processing Lines:  
Number \_\_\_\_\_  
Maximum Throughput Capacity \_\_\_\_\_ TPH  
Number of Operating Hours per Day per Line \_\_\_\_\_  
Fuel Yield \_\_\_\_\_ %  
Combustible Yield \_\_\_\_\_ %
4. Furnaces: Number \_\_\_\_\_  
Capacity \_\_\_\_\_ TPD
5. Boilers: Number \_\_\_\_\_  
Maximum steam output \_\_\_\_\_ lbs/hr  
Steam conditions at outlet \_\_\_\_\_ psig; \_\_\_\_\_ °F
6. Air Pollution Control Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - a. ESP: Number \_\_\_\_\_  
Fields/unit \_\_\_\_\_  
CSA \_\_\_\_\_
  - b. Baghouse: Number \_\_\_\_\_  
Capacity/unit \_\_\_\_\_ acfm  
Expected loadings (gr/dscf @12% CO<sub>2</sub>): inlet \_\_\_\_\_  
outlet \_\_\_\_\_
  - c. Scrubber: Number \_\_\_\_\_  
Type \_\_\_\_\_  
Re-agent \_\_\_\_\_  
Acid gas removal efficiency: HCl \_\_\_\_\_  
H<sub>2</sub>SO<sub>4</sub> \_\_\_\_\_
7. Ash Handling System: Number \_\_\_\_\_  
Type \_\_\_\_\_



TECHNICAL PROPOSAL FORM D (continued)

8. Boiler Feed Pumps: Number \_\_\_\_\_  
Capacity (each) \_\_\_\_\_ lbs/hr
9. Deaerator: Number \_\_\_\_\_  
Capacity \_\_\_\_\_ lbs/hr  
Operating pressure \_\_\_\_\_ psig
10. Steam Transmission Line: Overall length \_\_\_\_\_ ft  
Pipe size/schedule \_\_\_\_\_
11. Type of Water Treatment System: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. Stack Description: Number \_\_\_\_\_  
Height: \_\_\_\_\_
13. Stack Emissions (TPY at maximum capacity of \_\_\_\_\_ TPD):

Criteria Pollutants	Uncontrolled	Controlled
Particulates	_____	_____
SO <sub>2</sub>	_____	_____
NO <sub>x</sub>	_____	_____
CO	_____	_____
Total Hydrocarbons	_____	_____
Lead	_____	_____

14. Quantify Fugitive Emissions from Material Transport, Handling, and Storage: \_\_\_\_\_ TPY Uncontrolled  
\_\_\_\_\_ TPY Controlled



TECHNICAL PROPOSAL FORM E

AVAILABILITY DATA SHEETS  
BOILERS/FURNACES

Boiler No./Furnace No.:	_____	_____	_____	_____
Hours Scheduled Outage:				
January	_____	_____	_____	_____
February	_____	_____	_____	_____
March	_____	_____	_____	_____
April	_____	_____	_____	_____
May	_____	_____	_____	_____
June	_____	_____	_____	_____
July	_____	_____	_____	_____
August	_____	_____	_____	_____
September	_____	_____	_____	_____
October	_____	_____	_____	_____
November	_____	_____	_____	_____
December	_____	_____	_____	_____
TOTAL ANNUAL HOURS SCHEDULED OUTAGE	_____	_____	_____	_____
TOTAL ANNUAL HOURS NONSCHEDULED OUTAGE	_____	_____	_____	_____
TOTAL HOURS ANNUAL OPERATIONS	_____	_____	_____	_____
TOTAL	8,760 hrs	8,760 hrs	8,760 hrs	8,760 hrs





TECHNICAL PROPOSAL FORM F

AVAILABILITY DATA SHEET  
TURBINE-GENERATOR SET (if applicable)

	YEARS WITHOUT INSURANCE OUTAGE	YEARS WITH INSURANCE OUTAGE*
Hours Scheduled Outage:	_____	_____
January	_____	_____
February	_____	_____
March	_____	_____
April	_____	_____
May	_____	_____
June	_____	_____
July	_____	_____
August	_____	_____
September	_____	_____
October	_____	_____
November	_____	_____
December	_____	_____
TOTAL ANNUAL HOURS SCHEDULED OUTAGE	_____	_____
TOTAL ANNUAL HOURS NONSCHEDULED OUTAGE	_____	_____
TOTAL HOURS ANNUAL OPERATIONS	_____	_____
TOTAL	8,760 hrs	8,760 hrs

---

\* Provide attachment that identifies anticipated years in which insurance outage would occur.



TECHNICAL PROPOSAL FORM G

AVAILABILITY DATA SHEET  
FRONT-END PROCESSING LINES  
(if applicable)

Front-End Line No.:	_____	_____
Hours Scheduled Outage:		
January	_____	_____
February	_____	_____
March	_____	_____
April	_____	_____
May	_____	_____
June	_____	_____
July	_____	_____
August	_____	_____
September	_____	_____
October	_____	_____
November	_____	_____
December	_____	_____
TOTAL ANNUAL HOURS SCHEDULED OUTAGE	_____	_____
TOTAL ANNUAL HOURS NONSCHEDULED OUTAGE	_____	_____
TOTAL HOURS ANNUAL OPERATIONS	_____	_____
TOTAL	8,760 hrs	8,760 hrs



#### 4. INFORMATION ON BOSTON EDISON DISTRICT HEATING SYSTEM AND SOUTH BAY INCINERATOR SITE

For Proposers who elect a steam or cogeneration project to supply the Edison District Heating System, information is provided below on the District Heating System. In addition, information is provided on the City-offered site -- the South Bay Incinerator site.

##### 4.1 BOSTON EDISON DISTRICT HEATING SYSTEM

Information is provided in the following subsections on the steam distribution system, the existing steam supply stations, fuel cost, customers, steam demand, steam conditions, and interconnection.

##### 4.1.1 STEAM DISTRIBUTION SYSTEM

Exhibit B is a map of the total steam distribution system. The system comprises 22 miles of underground distribution pipes. According to Boston Edison personnel, the average age of the distribution system is 35 years; some components are more than 50 years old.

##### 4.1.2 EXISTING STEAM SUPPLY STATIONS

Three steam generating stations supply the District Heating System: (1) the Kneeland Street Station (near South Station) with a capacity of 1,180,000 pounds per hour; (2) the Scotia Street Station (near the Prudential Complex) with a capacity of 350,000 pounds per hour; and (3) the Minot Street Station (near the Nashua Street Registry of Motor Vehicles) with a capacity of 300,000 pounds per hour. Backup for these stations is provided via turbine extraction (200,000 pounds per hour with a 4- to 6-hour limitation in duration) from the New Boston Station in South Boston.

The Kneeland Street Station has a dual-fuel capability for No. 6 fuel oil (0.5-percent sulfur) and natural gas. Natural gas is provided on an interruptible service basis. If sufficient gas is available, it must be purchased for the daily fuel requirements at the Kneeland Street Station. The Scotia Street Station uses No. 2 fuel oil, and the Minot Street Station uses No. 6 oil. The total system fuel mix for the 12-month period ending September 1982 is given in the following table.





---

FUEL	QUANTITY
No. 6 oil	93,486 barrels
No. 2 oil	30,565 barrels
Natural gas	5,676,283 thousand cubic feet

---

#### 4.1.3 FUEL COST DATA

Table 4.1 provides the Edison fuel cost data used as a basis for determining the fuel cost of production given in subsection 2.3.2.1.

#### 4.1.4 CUSTOMERS

The average number of billed District Heating System customers is given below for the past 4.5 years:

---

YEAR	NO. OF BILLED CUSTOMERS
Jan 1982 - Aug 1982	378
1981	386
1980	410
1979	437
1978	457

---



TABLE 4.1

MONTHLY FUEL COSTS  
KNEELAND, SCOTIA, AND  
MINOT STREET STATIONS

MONTH	SENDOUT ( $10^3$ lbs)	FUEL COST (\$)	FUEL COST (\$/ $10^3$ lb)
Oct 1981	266,982	\$ 1,952,905	\$7.31
Nov	341,694	2,150,309	6.29
Dec	524,306	3,857,909	7.36
Jan 1982	720,027	5,411,785	7.52
Feb	514,366	3,526,439	6.86
Mar	451,472	2,836,713	6.28
Apr	359,507	2,704,985	7.52
May	226,540	1,298,252	5.73
June	244,542	1,410,442	5.77
July	320,476	2,347,420	7.32
Aug	272,523	1,615,281	5.93
Sept	<u>192,959</u>	<u>1,444,638</u>	<u>7.49</u>
TOTAL	4,435,394	\$30,557,078	\$6.89



#### 4.1.5 STEAM DEMAND

Information on gross steam production and net steam sales for the past 4.5 years is given below:

YEAR	GROSS (SENDOUT) (10 <sup>3</sup> lbs)	NET <sub>3</sub> (SALES) (10 <sup>3</sup> lbs)
Jan 1982 - Aug 1982	3,107,793	2,580,068
1981	4,530,047	3,717,556
1980	4,984,946	3,993,639
1979	5,700,530	4,389,457
1978	6,396,097	5,042,932

Some 70 percent of the steam customers use 90 percent of the steam sold. The 10 largest steam customers use 40 percent of the steam sold. Exhibit C provides a load duration curve for October 1981 through September 1982. Also included in this attachment are maximum/minimum daily load plots by month.

#### 4.1.6 STEAM CONDITIONS

The pressure capacity of the system is 250 psig; the normal system pressure is 175 psig.

For a description of Edison's chemical control systems, see Exhibit D.

#### 4.1.7 STEAM INTERCONNECTION

Exhibit E shows the relationship between the South Bay Incinerator site and the suggested District Heating System connection point at the 12-inch and 16-inch steam mains on Albany and East Newton streets. An existing steam line from the closed-down incinerator to the Boston City Hospital is also shown in Exhibit E. While this route is suggested as possible routing from the proposed facility, the route has not been field-checked.





Additional system plans are available for review at Boston Edison's Boylston Street Office. Proposers wishing to examine these plans should contact John J. Murphy, Steam Heat Group Manager (617-424-2509).

#### 4.2 SOUTH BAY INCINERATOR SITE

The South Bay Incinerator site is the location of the now-closed City incinerator. Exhibit F is an aerial map showing the South Bay Incinerator Site and surrounding areas. This City-owned site will be available to the Developer at its option. This 3+ acre site is located along South Bay Avenue and the Massachusetts Avenue exit of the northbound lane of the Southeast Expressway. (The City-owned site and adjoining parcels are shown in Exhibit A.) To the extent permitted by law, the City will make its best efforts to acquire adjacent parcels as necessary.

A Developer electing this site must utilize as much of the City-owned parcel as possible. If additional parcels are required, the Developer should consider the following order of utilization:

1. South Bay Avenue (Parcel 1 on Exhibit A).
2. The adjacent parcel owned by the Commonwealth of Massachusetts (Parcel 2 on Exhibit A).
3. The parcel located in the northern portion of the block bounded by South Bay Avenue, to the north, and Moore Street, to the east (Parcel 3 on Exhibit A).

The City-owned site, the adjacent Commonwealth of Massachusetts property, and the sites south of South Bay Avenue are currently used for various industrial activities.

##### 4.2.1 EXISTING ROWS, EASEMENTS, UTILITIES, AND TRAFFIC PATTERNS

Exhibit A shows the MBTA railway easements on the blocks bordered on the north by South Bay Avenue, on the south by Southampton Street, on the west by Topeka Street, and on the east by Moore Street. Existing sewer and water mains and traffic flow patterns are also shown on Exhibit A.

##### 4.2.2 EXISTING STRUCTURES AND FOUNDATIONS AND SOILS DATA

The Developer may utilize the existing incinerator structure or demolish all or part of the existing plant. Information related to



the existing structure, foundations, soil data, etc., can be obtained from the City's Department of Public Works, Contracts Office, by contacting Dennis Orant (617-725-4912).









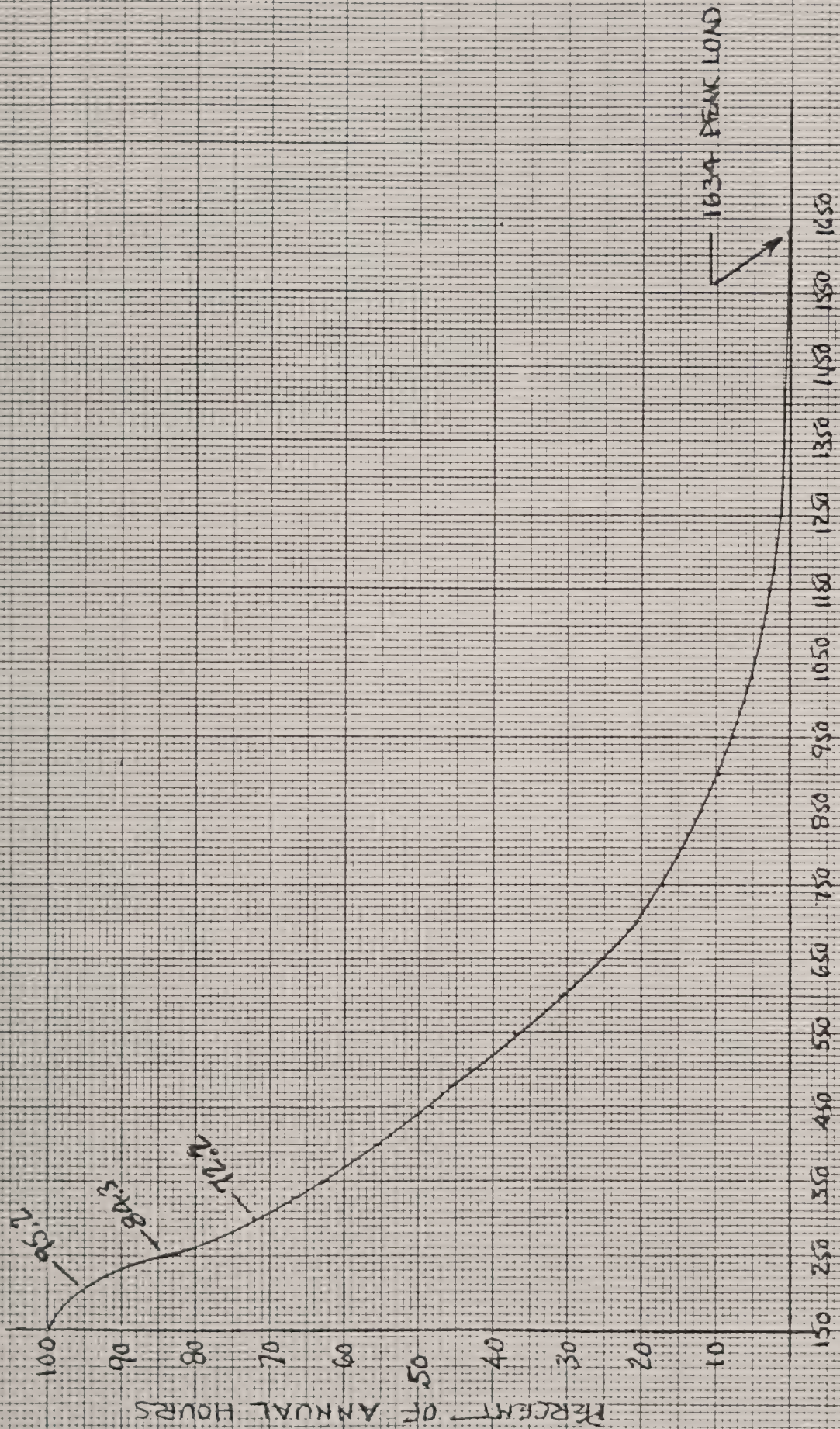
EXHIBIT C

BOSTON EDISON DISTRICT STEAM SYSTEM

LOAD DURATION CURVES

OCTOBER 1981 - SEPTEMBER 1982





SYSTEM HOURLY LOAD (MILES/HR)  
OCTOBER 1981 THROUGH SEPTEMBER 1982





DEGREE DAYS  
 ACTUAL 419  
 NORMAL 316

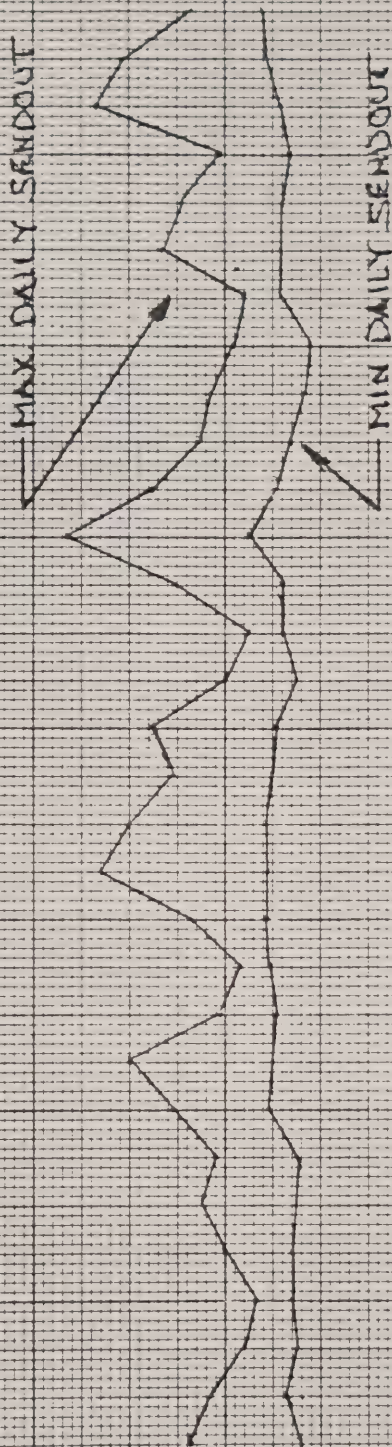
SENDOUT LOAD - 100,000 LBS/HR.

MAX DAILY SENDOUT

MIN DAILY SENDOUT

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

OCTOBER, 1981

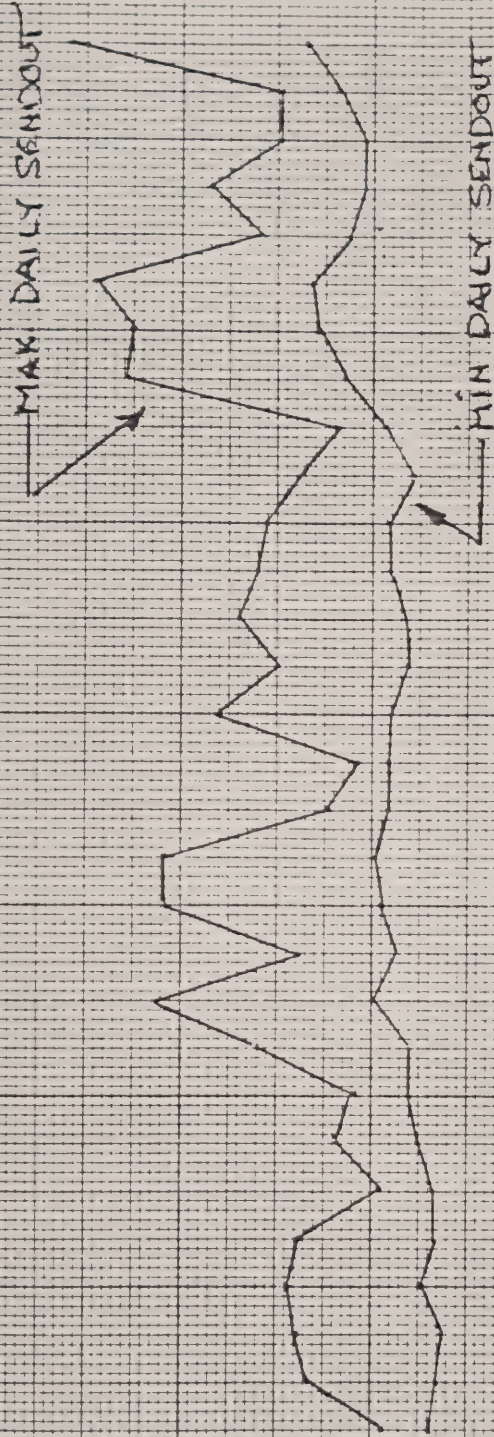






DEGREE DAYS  
 ACTUAL 628  
 NORMAL 603

SENDOUT LOAD - 100,000 LBS./HR.

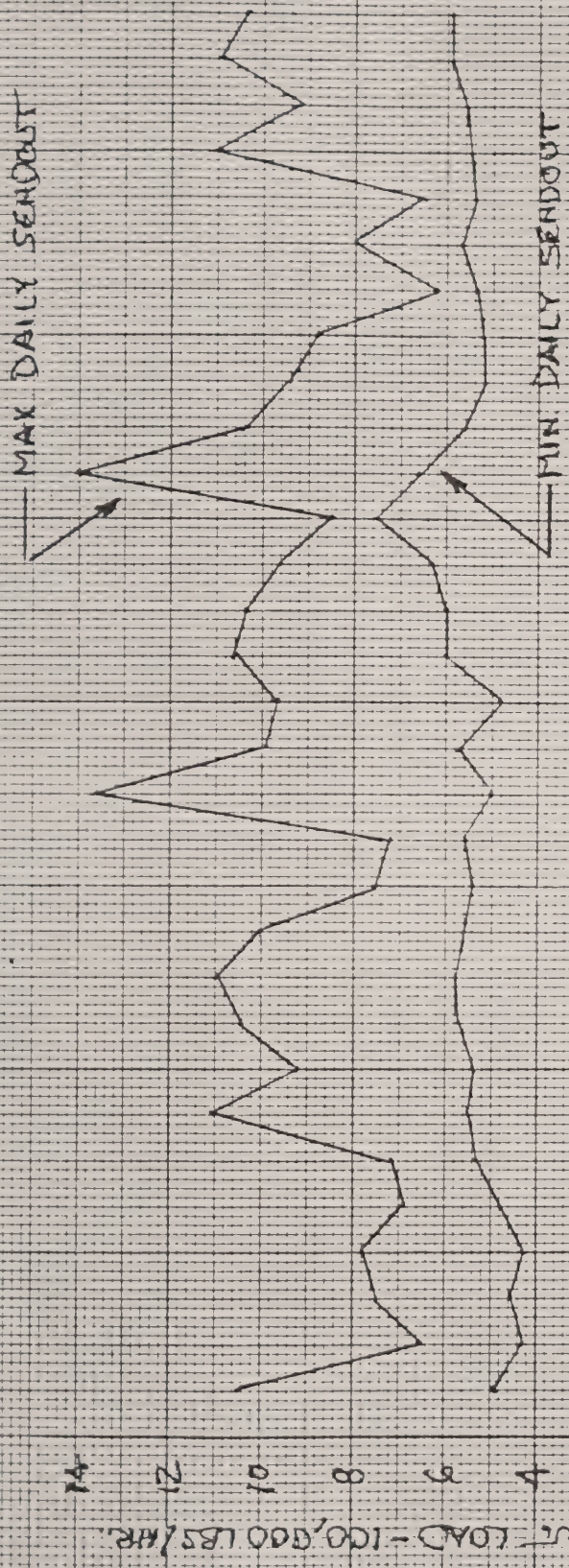


NOVEMBER, 1981





DEGREE DAYS  
 ACTUAL 984  
 NORMAL 983



DECEMBER, 1981





DEGREE DAYS  
ACTUAL  
1309  
NORMAL  
1088

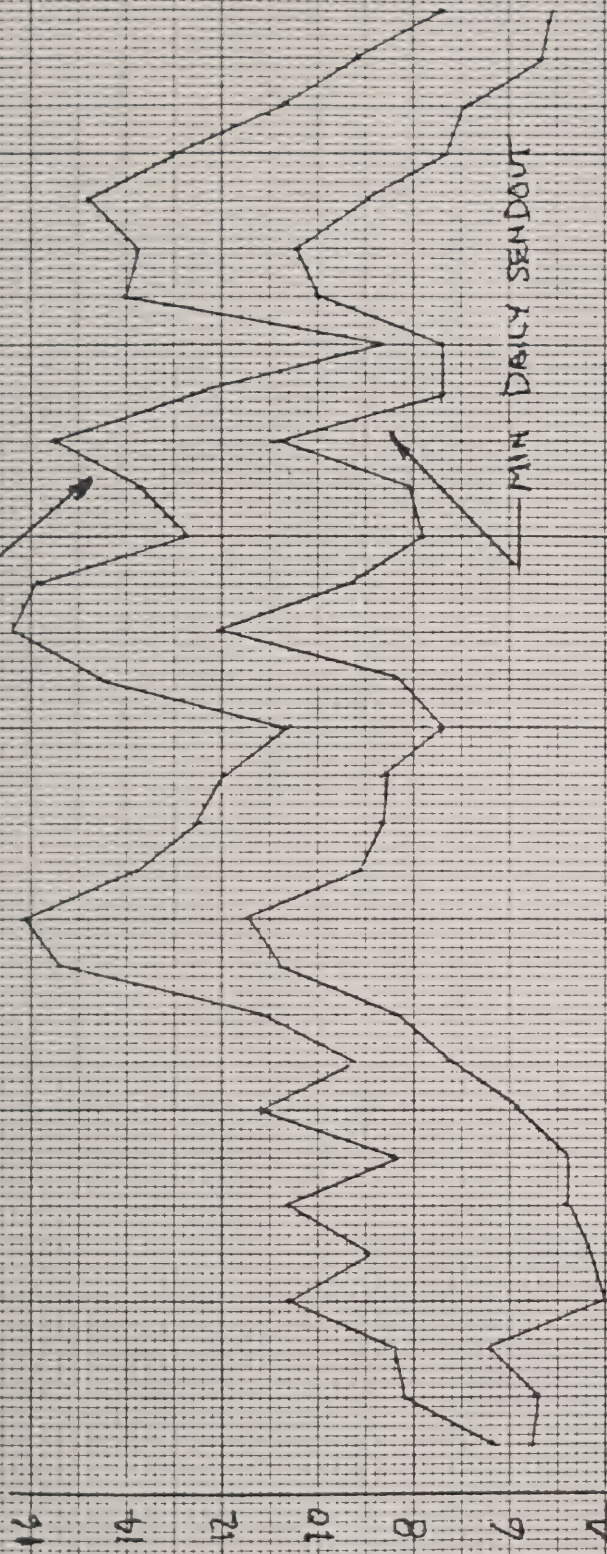
MAX DAILY SENDOUT

MIN DAILY SENDOUT

SENDOUT LOAD - 100,000 LB/HR

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

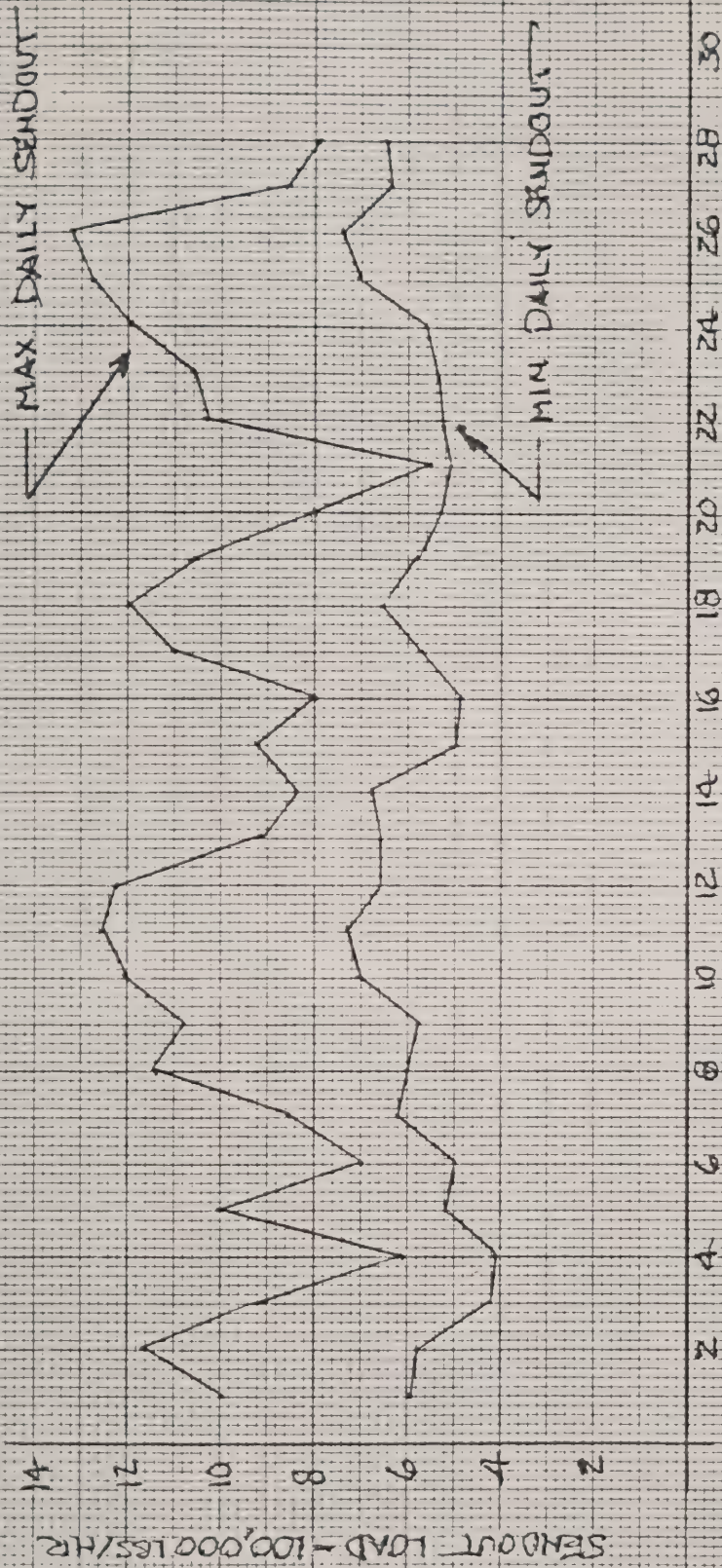
JANUARY, 1982







DEGREE DAYS  
 ACTUAL 953  
 NORMAL 972

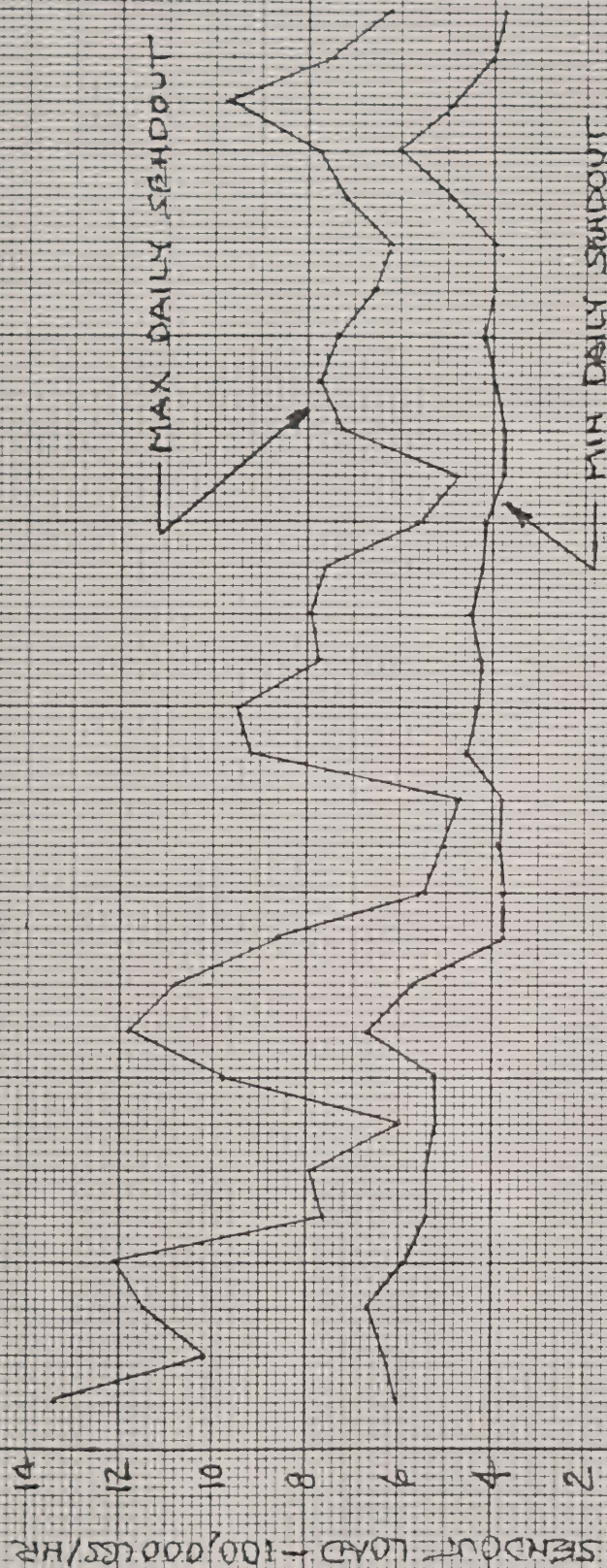


FEBRUARY, 1982





DEGREE DAYS  
 ACTUAL 811  
 NORMAL 846

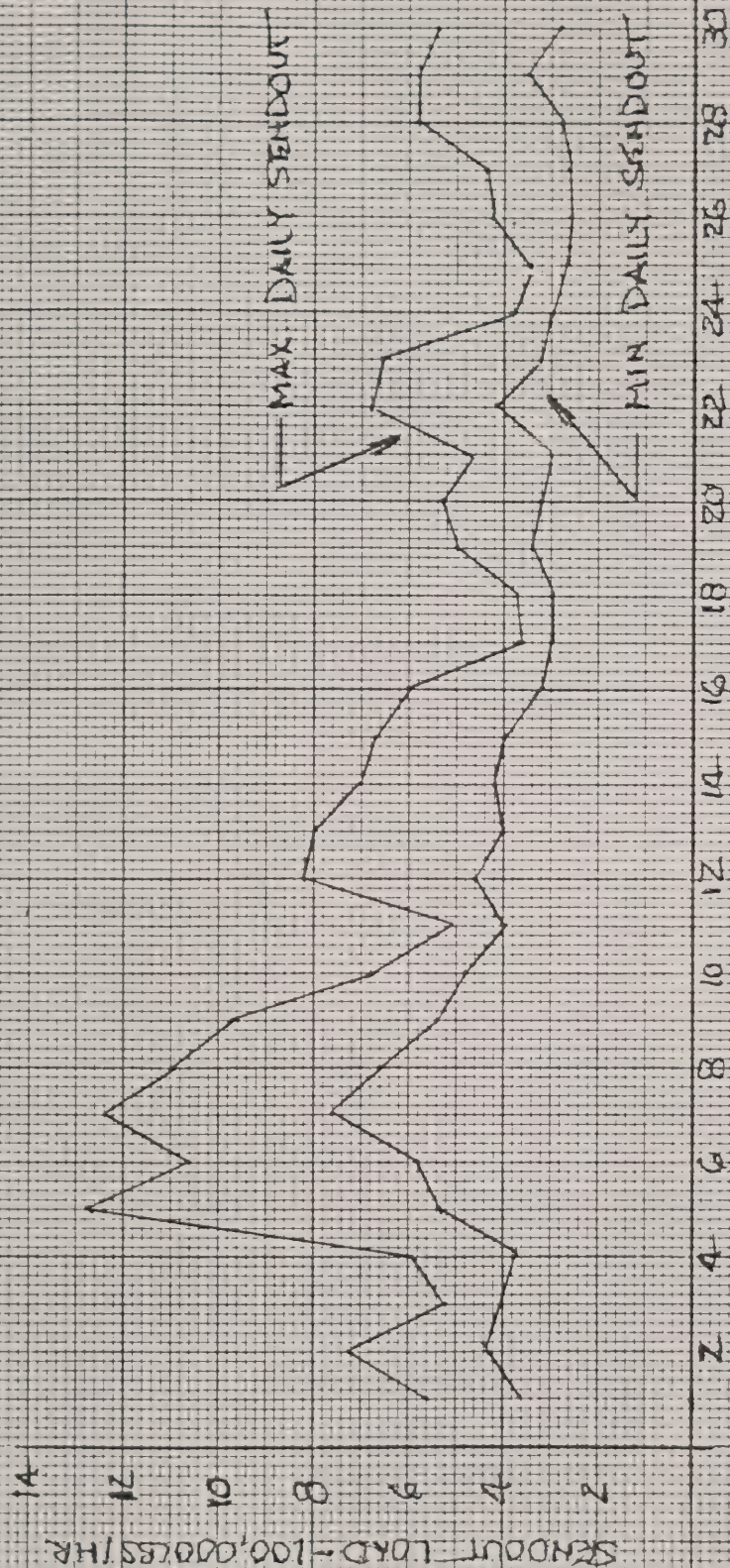


MARCH, 1982





DEGREE DAYS  
 ACTUAL 494  
 NORMAL 513



APRIL, 1982





DEGREE DAYS  
 ACTUAL 231  
 HEAT 208  
 COOL 15  
 NORMAL 208  
 20

SENDOUT LOAD - 100,000 LBS/Hr

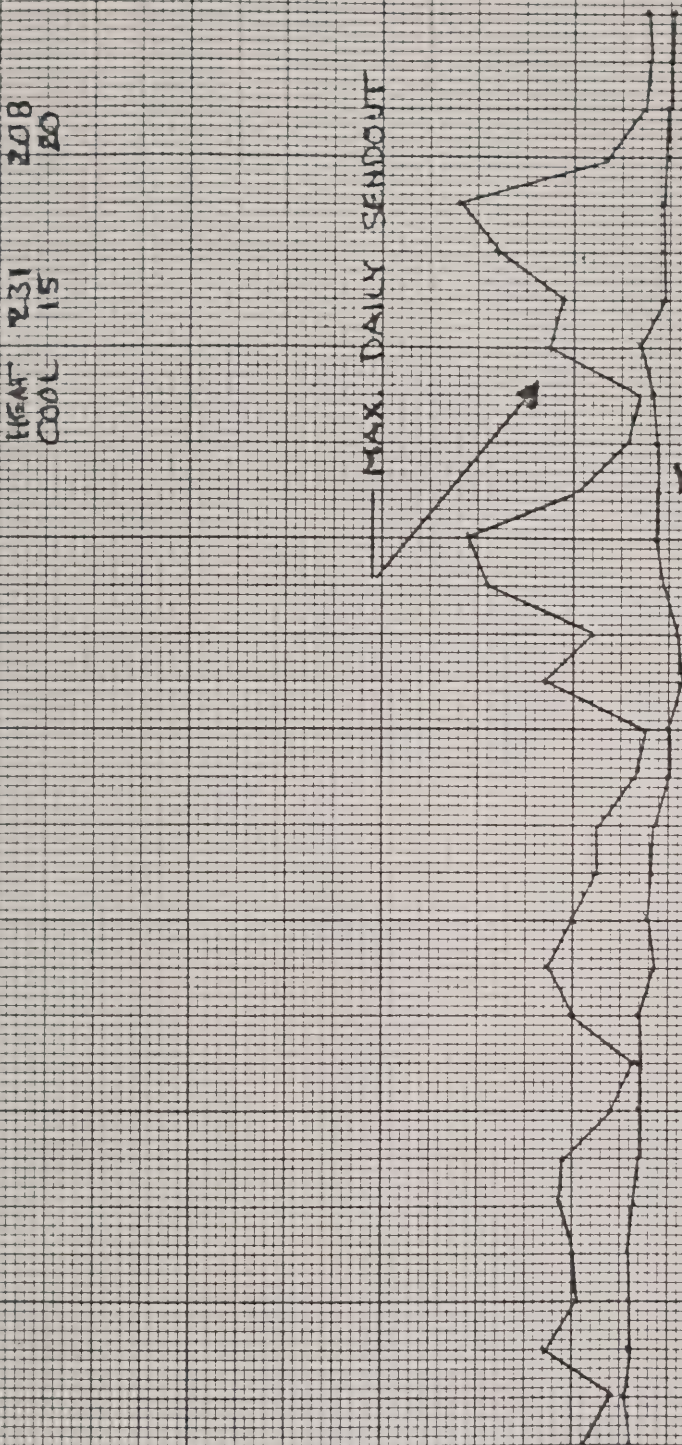
2 4 6 8

MAX. DAILY SENDOUT

MIN. DAILY SENDOUT

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

MAY, 1982







DEGREE DAYS  
 ACTUAL 104  
 HEAT 36  
 COOL 69  
 NORMAL 117

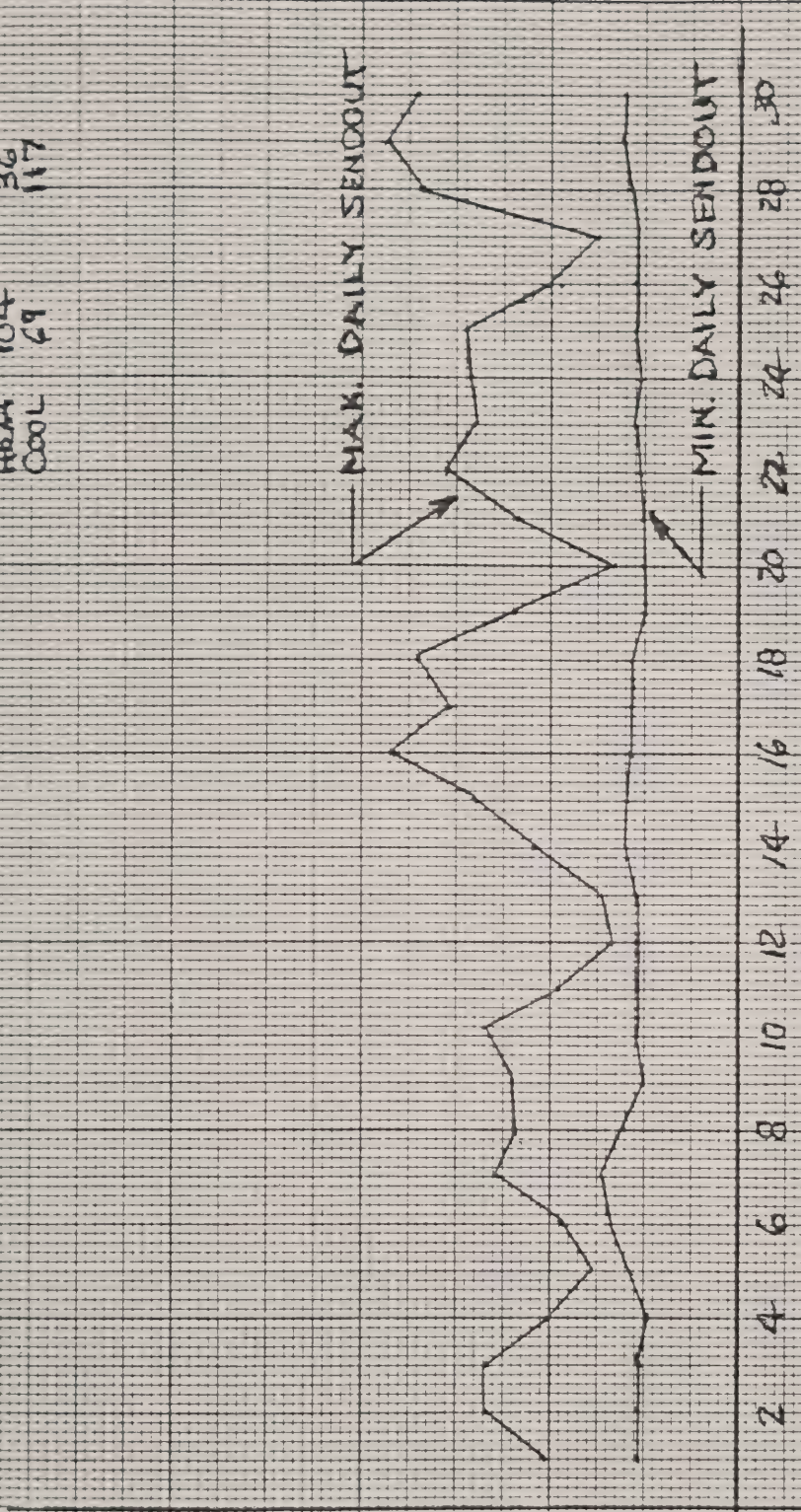
SENDOUT LOAD - 100,000 LBS/HR

2 4 6 8

MAX. DAILY SENDOUT  
 MIN. DAILY SENDOUT

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

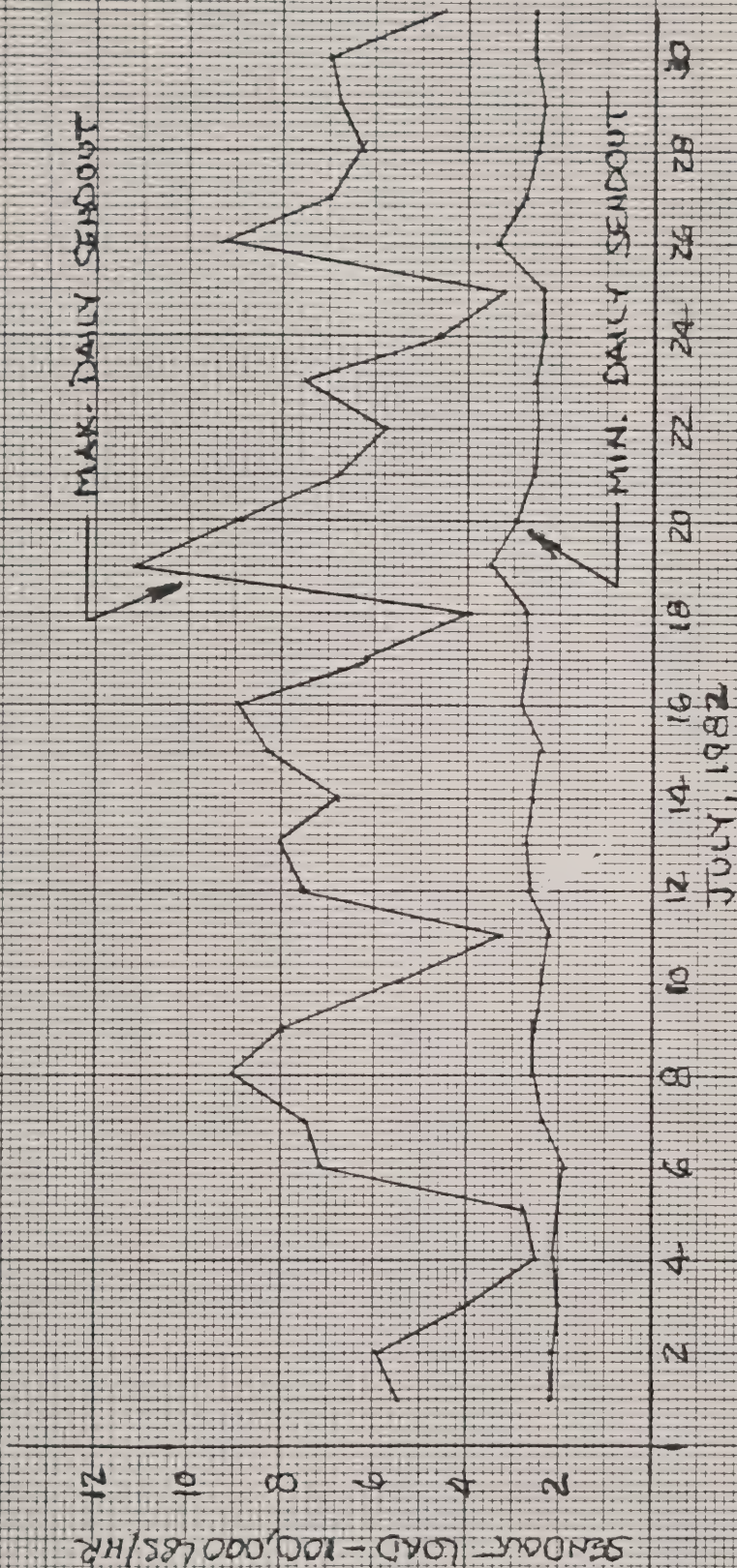
JUNE, 1982







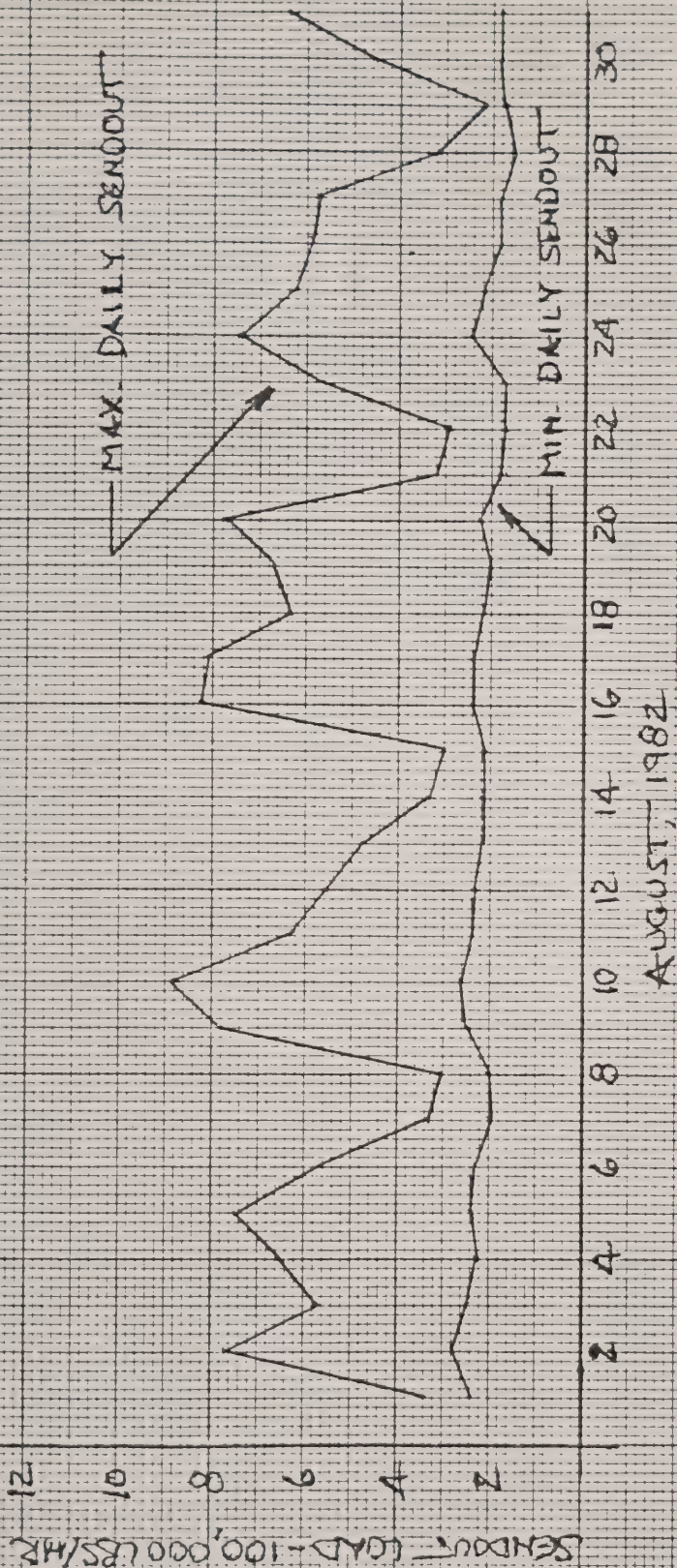
DEGREE DAYS  
 ACTUAL 2  
 NORMAL 0  
 HEAT 318  
 COOL 260







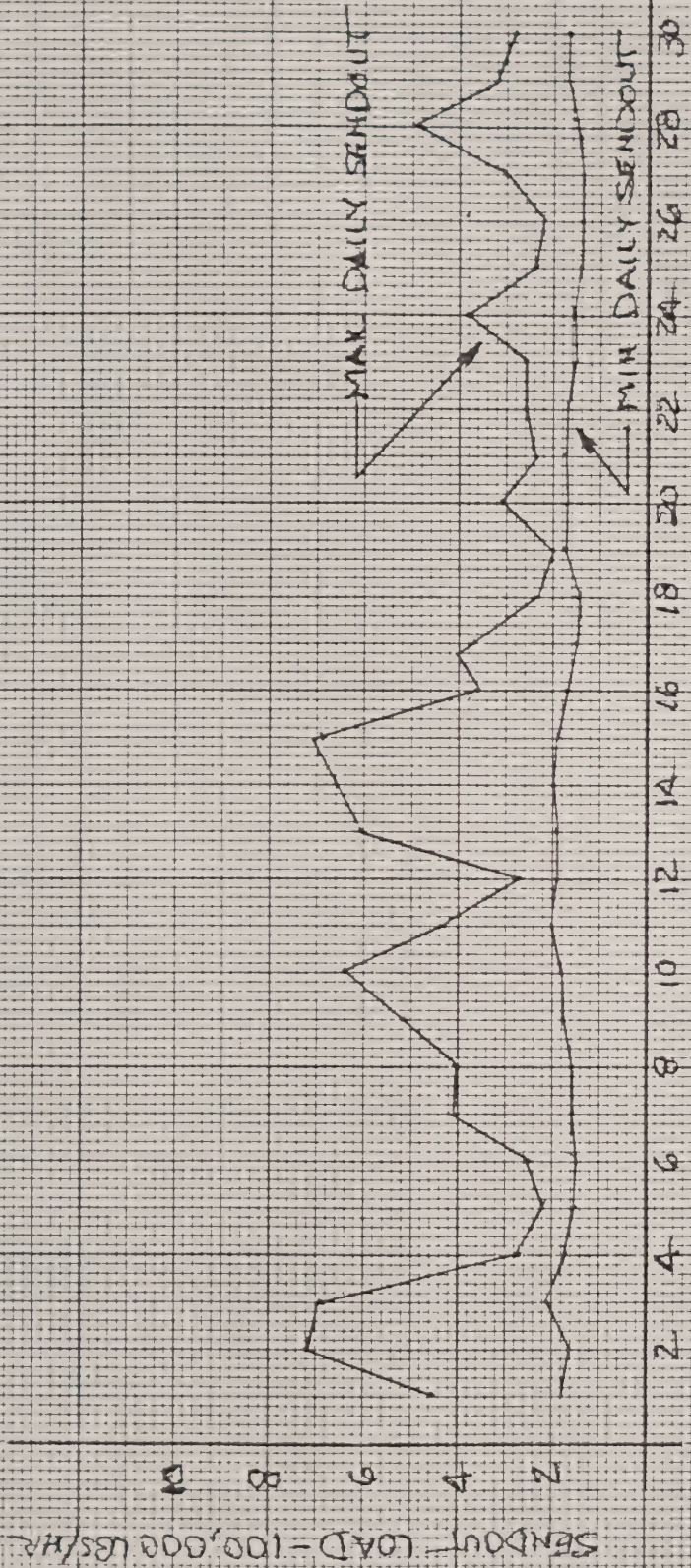
DEGREE DAYS  
 ACTUAL 24  
 WEAT 9  
 COOL 191  
 NORMAL 203







DEGREE DAYS	
HEAT	ACTUAL
COOL	NORMAL
59	60
61	61



SEPTEMBER, 1982





## EXHIBIT D

### BOSTON EDISON COMPANY STEAM HEATING STATION BOILERS CHEMICAL CONTROL LIMITS

#### CHEMICAL CONTROL LIMITS - BOILER WATER

##### Minot Street (S-1) - Boilers #6 and 7

Pressure range - 125 to 200 psig

pH - 10.0 to 10.5

Sulfite as  $\text{Na}_2 \text{SO}_3$  - 20 to 50 ppm

Sulfate as  $\text{Na}_2 \text{SO}_4$  - 2 x corrected alkalinity

Phosphate as  $\text{PO}_4$  - 25 to 75 ppm

Hardness as  $\text{CaCO}_3$  - less than 1.0 ppm

Total Solids - maximum of 1500 ppm

##### Kneeland Street (S-2) - Boilers #1, 2, 3, and 4

Pressure range - 200 to 350 psig

pH - 10.0 to 10.5

Sulfite as  $\text{Na}_2 \text{SO}_3$  - 20 to 50 ppm

Sulfate as  $\text{Na}_2 \text{SO}_4$  - 3 x corrected alkalinity

Phosphate as  $\text{PO}_4$  - 5 to 10 ppm

Hardness as  $\text{CaCO}_3$  - less than 1.0 ppm

Total Solids - maximum of 1500 ppm

##### Scotia Street (S-3) - Boilers #1, 2, and 3

Pressure range - 200 to 250 psig

pH - 10.0 to 10.5

Sulfite as  $\text{Na}_2 \text{SO}_3$  - 20 to 50 ppm

Sulfate as  $\text{Na}_2 \text{SO}_4$  - 3 x corrected alkalinity

Phosphate as  $\text{PO}_4$  - 5 to 10 ppm

Hardness as  $\text{CaCO}_3$  - less than 1.0 ppm

Total Solids - maximum of 1500 ppm



BOSTON EDISON COMPANY  
STEAM HEATING STATION BOILERS  
DESCRIPTION OF CHEMICAL CONTROL SYSTEMS

Minot Street - Station S-1

The chemical feed system for this station consists of sodium phosphate, sodium sulfate, and sodium sulfite.

1 - Boiler #6

One solution of 25 lbs. of sodium phosphate, 8 lbs. of sodium sulfate, 4 lbs. of sodium sulfite, and 150 gallons of water is made up in a combination mixing and storage tank. The mixing portion has a capacity of 175 gallons and the storage portion has a capacity of 150 gallons. The tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket. The chemical solution is fed into the No. 6 deaerator by service water injection.

2 - Boiler #7

a - Sodium Sulfate Feed System

One solution of 4 lbs. of sodium sulfate and 120 gallons of water is made up in a chemical mixing tank. This tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket.

One Milton Roy chemical feed pump is provided. It has a capacity of 17 gallons per hour. This pump takes its suction from the chemical mixing tank and pumps the chemical solution to the No. 7 deaerator. A discharge pressure relief valve is attached to the pump discharge line.

b - Sodium Phosphate and Sodium Sulfite Feed System

One solution of 20 lbs. of sodium phosphate, 6 lbs. of sodium sulfite, and 120 gallons of water is made up in a chemical mixing tank. This tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket.





One Milton Roy chemical feed pump is provided. It has a capacity of 17 gallons per hour. This pump takes its suction from the chemical mixing tank and pumps the chemical solution to the steam drum. A discharge pressure relief valve is equipped with the pump.

#### Kneeland Street - Station S-2

The chemical feed system for this station consists of tri-sodium phosphate, sodium sulfite, and sodium sulfate.

##### 1 - Tri-Sodium Phosphate and Sodium Sulfite Feed System

One solution of 100 lbs. of tri-sodium phosphate, 300 lbs. of sodium sulfite, and 700 gallons of water is made up in a 709 gallon mixing tank at the basement level. This tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket and a propeller type mixer.

One chemical feed tank with a capacity of 1029 gallons is located on the 8th floor at the elevation of 125 feet. It is vertically mounted. A flow indicator, a level indicator, and a relief valve are attached to the tank.

One Goulds Model 3196 Centrifugal chemical feed transfer pump is provided. It has a capacity of 30 gpm at 190 feet TDH. This pump takes its suction from the chemical mixing tank and pumps the chemical solution to the chemical feed tank. From here the chemical solution is fed in the boiler feed line at the inlet of the deaerators by gravity.

The chemical transfer pump is started manually from the local "STOP-START" pushbuttons. It is manually controlled, e.g., when the chemical feed tank indicates a low level the operator starts the pump and when the tank indicates a high level the operator stops the pump.



## 2 - Sodium Sulfate Feed System

One chemical mixing tank with the capacity of 430 gallon is provided. This tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket and a charging door.

Two sodium sulfate chemical storage tanks are located at the basement level. They are pressurized and vertically mounted. Each tank has a capacity of 680 gallons. A specific gravity float is attached to each tank. One tank is normally in service while the other is a spare. One chemical transfer pump is manually controlled by the local "STOP-START" pushbuttons. It pumps an approximately 3% sodium sulfate solution from the chemical mixing tank to the chemical storage tanks when a specific gravity float indicates a low sodium sulfate concentration in the storage tanks.

The chemical solution is fed in the inlet of the two surge tanks by the bearing cooling water displacement and by service water injection.

A flow orifice, a flow recorder, and a flow meter are located on the bearing cooling line. The flow of the chemical solution to the surge tanks is manually controlled by throttling the chemical storage tank inlet valve. The flow rate of the chemical solution is increased or decreased depending upon the steam demand.

## 3 - Slug Feed System

One slug mixing tank is provided. It is vertically mounted, opened to the atmosphere, and has a capacity of 30 gallons.

One Milton Roy chemical feed pump is located at the elevation of 86 feet. This pump takes its suction from the slug mixing tank and pumps the slug solution to the steam drums. This pump serves all four boilers. It starts manually from the local "STOP-START" pushbuttons.



### Scotia Street - Station S-3

The chemical feed system of this station consists of tri-sodium phosphate, sodium sulfate, and sodium sulfite.

#### 1 - Tri-Sodium Phosphate and Sodium Sulfate Feed System

One solution of approximately 35 pounds of tri-sodium phosphate, 5 pounds of sodium sulfate, and 85 gallons of water is made up in a 100 gallon mixing tank. This tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket and a gage glass. One tank is provided with each unit.

One Milton Roy Hydraulically activated diaphragm chemical feed pump is provided with each unit. This pump has a maximum capacity of 15 gph at a discharge pressure of 400 psig. The pump output is manually controllable by means of a micrometer adjustment.

The chemical feed pump takes its suction from the chemical mixing tank and pumps the chemical solution to the boiler drum.

The chemical feed pump is started manually from the local "STOP-START" push-buttons. Each pump is equipped with a pressure relief valve.

#### 2 - Sodium Sulfite Feed System

One chemical feed unit serves deaerator No. 1 which serves boiler No. 1 and one chemical feed unit serves deaerator No. 2 which serves boiler No.'s 2 and 3. Each chemical feed unit contains one chemical mixing tank and one chemical feed pump.

A solution of approximately 6 pounds of sodium sulfite and 85 gallons of water is made up in a 100 gallon mixing tank. This tank is vertically mounted, opened to the atmosphere, and equipped with a dissolving basket and a gage glass.





A chemical feed pump is the Milton Roy Hydraulically activated diaphragm type. This pump has a maximum capacity of 15 gph at a discharge pressure of 25 psig. The pump output is manually controllable by means of a micrometer adjustment.

The chemical feed pump takes its suction from the chemical mixing tank and pumps the chemical solution to the boiler feed line at the suction of the boiler feed pumps.

The pump is started manually from the local "STOP-START" pushbuttons. Each pump is equipped with a pressure relief valve.



# Boston

July 28, 1983

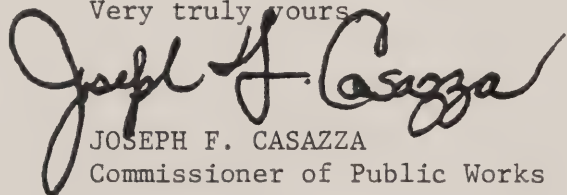
To Interested Proposers for the City  
of Boston Waste-to-Energy Project

RE: Clarification to the City of Boston  
Request for Developers (RFD) for a  
Waste-to-Energy Project.

Gentlemen:

The attached RFD Addendum #3 contains questions and responses on  
matters related to the RFD, and is being distributed to all entities  
drawing the RFD.

Very truly yours,

  
JOSEPH F. CASAZZA  
Commissioner of Public Works

JFC/jc  
Encl.



Kevin H. White, Mayor / DEPARTMENT OF PUBLIC WORKS / Boston City Hall / City Hall Plaza 02201  
Joseph F. Casazza, Commissioner, 725-4900  
Robert P. Mehegan, Executive Secretary 725-4901





QUESTIONS AND ANSWERS CLARIFYING THE CITY OF BOSTON  
REQUEST FOR DEVELOPERS OF A WASTE-TO-ENERGY PROJECT

RFD ADDENDUM #3  
July 28, 1983

- 1.Q: Is acquisition of the materials and equipment used in construction of the Facility subject to State sales tax?
- 1.A: This matter will be subject to a specific ruling by the Commonwealth of Massachusetts, Commissioner of Revenue. (The Commissioner issued a ruling on this issue for the NESWC resource recovery project on January 13, 1983.) The City will seek a similar ruling from the Commissioner for the Boston project. Proposers may therefore, assume that the policy applied to NESWC will also apply to Boston. In the event the ruling on the Boston project differs from that given for the NESWC project, the City would accept appropriate adjustments to the Service Fee. The relevant excerpt from the Commissioner's ruling for NESWC is stated below:

"General Laws Chapter 64H, Section 2 imposes the sales tax on sales at retail of tangible personal property by any vendor; "sale at retail" is defined in Section I (13) as a sale of tangible personal property for any purpose other than resale in the regular course of business.

A contractor who purchases materials from a retailer for use in building construction is generally considered the consumer of the materials and not a purchaser for resale for sales and use tax purposes. ....

Chapter 64H, Section 6(s) provides an exemption for sales of machinery or replacement parts thereof used directly and exclusively in an industrial plant in the actual manufacture, conversion or processing of tangible personal property to be sold or in the furnishing of gas, waste, steam or electricity when delivered to consumers through mains, lines or pipes.



For purposes of Section 6(s), "industrial plant" means a factory at a fixed location primarily engaged in the manufacture, conversion or processing of tangible personal property to be sold in the regular course of business.

Based on the foregoing, it is ruled that:

1. The transfer of the Facility from the Contractor to the Owner/Operator will not be subject to the sales or use tax.
2. Neither sales nor use tax will apply to purchases by the Contractor or its subcontractors of the cranes, stokers, boilers, turbine-generator, condensers, electrostatic precipitators, electrical switchyard, components of the ferrous metal recovery system, or the machinery that forms part of the Facility's cooling water system (including the electric motor and fan in the cooling tower).
3. Purchases by the Contractor or its subcontractors of ancillary equipment for the cranes, stokers, boilers and turbine-generator will be exempt from the sales and use taxes provided that such equipment is an adjunct or attachment necessary for the basic unit to accomplish its intended function, or a device used or required to control, regulate or operate the basic unit and directly connected with or an integral part of the basic unit.
4. The sales or use tax will apply to purchases by the Contractor or its subcontractors of building materials to be incorporated into the Facility, including the materials from which the stack and the cooling tower structure will be built."

2.Q: Boston Edison has provided preliminary estimates of the costs of interconnection for Developers proposing to sell electricity to Edison. These estimated costs are subject to change based upon further engineering work and the outcome of



contract negotiations with Edison. Will the City accept adjustments in its Service Fee based upon final determination of the costs of interconnection?

2.A: Yes, the City will accept appropriate adjustments in the Service Fee. Proposers should provide Edison's preliminary estimate of interconnection costs, which will be the base for any adjustment.

3.Q: In referring to the July 20, 1983, communication from the Water and Sewer Commission regarding additional interconnections for water and sewer service, clarify the following:

- a. If a Developer proposes to install a new 30-inch water transmission line from the 30-inch transmission main in Southampton Street, in addition to the Developer assuming the cost, what are the respective responsibilities of the Developer and Water and Sewer Commission for making the installation?
- b. If a Developer proposes to install a new storm system discharging to the existing 4-foot drain in Southampton Street, what are the respective responsibilities of the Developer and the Commission for assuming the cost and making the installation?

- 3.A:
- a. The Developer will be responsible for making the installation subject to review of plans and specifications, follow up inspection by the Water and Sewer Commission, and issuance of the necessary permits by the Department of Public Works for in-street construction.
  - b. Assuming that the installed sewer drain does not exceed 15-inches in capacity, the Water and Sewer Commission will assume the cost and install the sewer. If capacity in excess of 15-inches is required, the Water and Sewer Commission will negotiate cost sharing with the Developer for the additional capacity.





# Boston

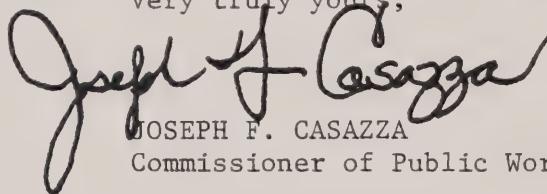
July 22, 1983

To Interested Proposers for the City  
of Boston Waste-To-Energy Project

Gentlemen:

Due to the numerous inquiries of the Boston Water and Sewer Commission, enclosed you will find a compilation of necessary information pertaining to the capacity of water, sewer, and drain facilities, as prepared by John P. Sullivan, Jr., Director of Engineering.

Very truly yours,



JOSEPH F. CASAZZA

Commissioner of Public Works

JFC/jc  
Encl.



Kevin H. White, Mayor / DEPARTMENT OF PUBLIC WORKS / Boston City Hall / City Hall Plaza 02201  
Joseph F. Casazza, Commissioner, 725-4900  
Robert P. Mehegan, Executive Secretary 725-4901



**Boston Water and  
Sewer Commission**



10 Post Office Square  
Boston, Massachusetts 02109  
617-426-6046

July 20, 1983

Joseph F. Casazza  
Commissioner  
Boston Public Works Department  
Room 714, City Hall  
Boston, Massachusetts 02201

Re: Proposed Boston Waste to Energy Project

Dear Commissioner Casazza:

As a result of several inquiries as to the capacity of water, sewer and drains facilities in the area of South Bay Avenue, Roxbury, the Boston Water and Sewer Commission has evaluated the existing systems and presents the results below with appropriate comments.

WATER

Existing water system is a 12-inch low service loop system which is interconnected to the 30 inch transmission main in Southampton Street (see attached sheet). Fire flow tests conducted on July 14, 1983 indicates the following:

Southampton Street at Atkinson Street - 12 in. low service

- Static pressure 60 psi
- Residual pressure 50 psi
- Flow - 1850 gpm
- Estimated Flow at 20 psi - 3910 gpm

Cummings Street at South Bay Avenue - 12 in. low service

- Static 57 psi
- Residual 47 psi
- Flow 1509 gpm
- Estimated Flow at 20 psi. 3060 gpm

Loss of head tests indicate that all mains have decreased capacity which could be increased by cleaning and cement relining. This work would be performed by BWSC. Additional interconnections to the 30 inch transmission main would be allowed if required by developer but all costs would be borne by the developer.





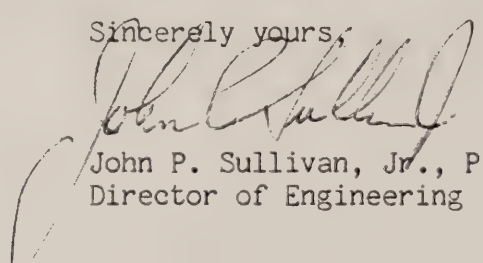


SEWER

The sewer serving the South Bay Avenue area is a 12-inch combined sewer in South Bay Avenue which flows to Atkinson Street and thence to a 20-inch sewer in Southampton St. Capacity of the sewer is 1.7 c.f.s. The sewer was constructed in 1957. Future anticipated sanitary flows of up to 300 gpm could be accommodated however, the existing system could not accept additional flow.

A new storm system would be required if additional storm water is to be discharged to the Commission system. There is an existing 4-foot drain in Southampton Street to which additional storm lines could be connected. The Commission will be prepared to discuss construction of new drain lines in conjunction with new roadway construction to service the project. Funding new storm drains in public way will be provided by BWSC.

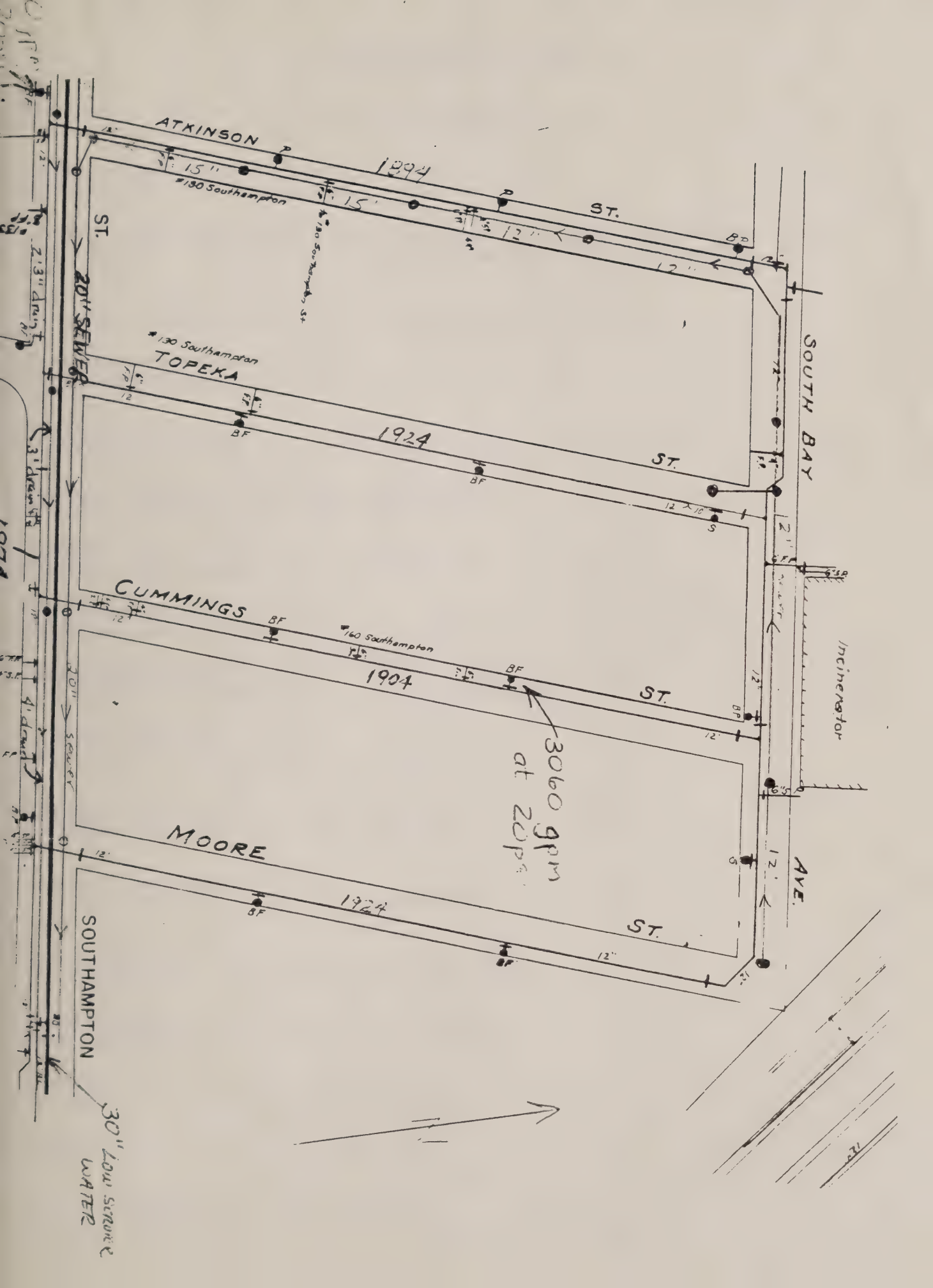
Sincerely yours,

  
John P. Sullivan, Jr., P.E.  
Director of Engineering

JPS/mhw

cc: Michael G. O'Neill, P.E.







LIST OF BIDDERS FOR RFD

Air Quality Consultants (For Co-Gen Fuel Company)  
139 Washington Street, Weymouth, Ma. (337-7320)

Northeast Energy Conservation Corp.  
80 Polley Lane, East Walpole, Ma. (668-8068)

G.E.S.E. S.R.L. Via Copo D'Africa (Purchased by Peter Koff of Marullo & Barnes  
Rome, Italy 141 Tremont St., Bos. 02100 (482-6363)

RESCO  
100 Salem Turnpike, Saugus, Ma. 01906 (233-7600)

Boston Resource Recovery Group  
Boylston St., Boston (267-5555)

Energy Answers  
48 Howard St., Albany, N.Y. 12207 (518-434-1227) Mass# (947-8555)

Heikki K. Elo, Consulting Engr., Lehigh Forming Co., Inc.  
P.O. Box 799, Easton, Pa. 18042 (215-258-0830)

Charles T. Main, Inc.  
Prudential Ctr., Boston, Ma. 02199 (262-3200) ex. 2634

The Crouse Group Inc.  
Upper Lewis Rd., Linfield, Pa. 19468 (215-495-7101)

Hayden-Wegman, Inc.  
1340 Soldiersfield Rd., Boston, Ma. 02135 (254-6930)

General Electric Co.  
29 Sawyer Rd., Waltham, Ma. 02154 (647-7326)

Browning- Ferris Ind.  
100 Hallet St., Dor., Ma. 02124 (265-0500)

Seaward Construction Co., Inc.  
Route 236, Kittery, Me. 03904 (207-439-5900)

Boston Edison Co.  
800 Boylston St., Boston, Ma. 02199 (424-2000)

Sweco USA, Inc.  
77 North Washington St., Boston, Ma. (742-9576)

Laidlaw  
P.O. Box 1751, Plainville, Ma. 02762 (699-2067)

Perini Corp.  
73 Mt. Wayte Ave., Framingham, Ma. 01701 (875-6171)

Waste Management Inc. of New England  
Building #75, Charlestown Navy Yard, Chasn., Ma. (242-0202)





LIST OF BIDDERS FOR RFD- PAGE 2

Blount Energy Resource Corp.  
4520 Executive Park, Mont., ALA. 36195  
P.O. Box 4577 (205-272-8000)

Sciavone Constr. Co.  
1600 Patterson Plank Rd., Secaucus, N.J. 07094 (201-867-5070)

City of Springfield  
Department of Public Works, 1600 E. Columbus Ave., Springfield, Ma.

George Cavalieri (203-527-1825)  
Urban Research & Development Corp., P.O. Box 1776, East Granby, Ct. 06026

EBASCO Services, Inc. (Harvey S. Sands, Marketing Director)  
2 World Trade Center, N.Y., N.Y. 10048

Paul A. Laurence Company  
10,000 Highway 55 West, Plymouth, Maine 55441

Metcalf & Eddy, Inc. (William C. Finn)  
50 Staniford Street, Boston, Ma. 02114

Henningson, Durham & Richardson  
180 Washington St., Haverhill, Ma.

Ogden Martin Systems, Inc. (Lewis Ott Ward) (312-699-9820)  
10700 Higgins Rd., Suite 202, Rosemont, Ill. 60018

Signal RESCO (617-777-4412)  
Ferncroft Rd., Danvers, Ma. 01923

Advance Ross Electronics, PPC Industries Division  
3000 E. Marshall, Longview, Texas 75602 (June Barnett) (214-758-3395)



# Boston

July 6, 1983

TO: Prospective Proposers

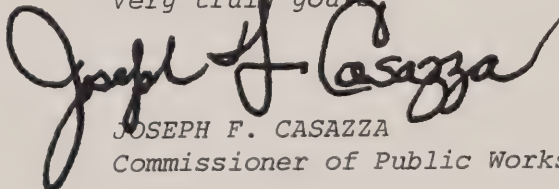
RE: Addendum No. 2 to the Request for Developers for a  
Waste-to-Energy Project in the City of Boston.

Gentlemen:

The enclosed material supplements and amends the City's Request for Developers (RFD), issued on April 25, 1983. Please note, that Items 3, 4, 5, and 6 below, will require the Proposers to provide information in the proposals, in addition to that requested in the original RFD.

1. Schedule of Significant Procurement and Environmental Permitting Activities.
2. Underwriter Selection.
3. Summary of Key Environmental Requirements.
4. Estimated Annual Throughputs and Outputs.
5. Budgetary Estimate of Capital Costs.
6. Terms and Conditions Applicable to the Purchase of Steam and Electricity by the Boston Edison Company.

Very truly yours,

  
JOSEPH F. CASAZZA  
Commissioner of Public Works

JFC/jc  
Encl.



Kevin H. White, Mayor / DEPARTMENT OF PUBLIC WORKS / Boston City Hall / City Hall Plaza 02201  
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TERMS AND CONDITIONS

APPLICABLE TO THE PURCHASE OF STEAM FROM A REFUSE TO ENERGY FACILITY  
BY BOSTON EDISON COMPANY

June 2, 1983



The purpose of the following is to provide information relative to the bounds within which Boston Edison is prepared to negotiate for the purchase of steam from a refuse to energy facility. These general terms and conditions are provided as information only and should not be construed as an offer to purchase steam. Such an offer will be subject to negotiation between Boston Edison (Buyer) and a facility developer-owner (Seller).

#### I. Interconnection

As utilized herein, interconnection facilities shall refer to all steam lines, traps and valves required by the Seller and Buyer to connect the facility to the current steam distribution system of the Buyer at a point where the facilities steam capacity will enter the system in an efficient manner.

Interconnection engineering and construction shall be approved by the Buyer and paid for by the Seller. Buyer approval shall be guided by the need to maintain the engineering and operational integrity of its steam distribution system. The Seller shall maintain ownership of all interconnection facilities except those in the public ways. These will be owned by the Buyer.

The Buyer shall operate, maintain and repair all interconnection facilities in consultation with the Seller. The Buyer will operate, maintain and repair interconnection facilities in a manner consistent with the integrity of the District Steam System. All costs applicable to such operation, maintenance and repair shall be billed to the Seller.

#### II. Metering

Metering equipment must be approved by the Buyer and paid for and installed by the Seller. The Seller shall, at his expense, test all metering quarterly and calibrate all metering annually. Quarterly testing and annual calibration must be validated by the Buyer.

Meters may be located at the refuse to energy site if the site is the South Bay Incinerator Site provided by the City of Boston. If an alternative site is selected, meter location shall be determined by the Buyer.

#### III. Duration of Contract

Buyer is prepared to agree to a five (5) year take and pay contract. The contract would be renewable annually after the initial five (5) year period at the option of the Buyer.

#### IV. Price and Payment

Buyer will purchase all steam at the lesser of ninety (90) percent of the price of 2.2 percent sulfur fuel oil or ninety (90) percent of Buyer's





avoided energy cost. Price at 90% is dependent upon a guaranteed minimum capacity for select periods to be mutually agreed upon by Buyer and Seller.

Seller will bill Buyer on a monthly basis. Buyer agrees to payment of bill within thirty (30) days after receipt. Buyer reserves right to dispute all or a portion of any bill. If any portion of a bill is in dispute, Buyer agrees to pay that portion not in dispute.

If meter testing finds fault with the metering equipment or a meter error greater than plus or minus three (3) percent, all bills paid from the last meter testing period shall be adjusted for the meter error. The adjusted portion of past payments shall be added to or subtracted from the next bill submitted. This adjusted portion, if an overcharge, will be subject to a penalty equal to the prime rate of the First National Bank of Boston for the period over which the incorrect billing was applied times the overcharge during the period.

#### V. Steam Quality and Send-out Schedule

Seller agrees to provide dry saturated steam of a chemical quality that is equal to that produced by the Buyer. Steam from the Seller must provide for system pressure variances from 100 P.S.I.G. to 250 P.S.I.G. Under any and all circumstances Buyer's decision as to standards is to be controlling relative to steam chemical and moisture quality, pressure and capacity required.

Seller will provide Buyer an annual schedule of expected steam send-out. The Seller will provide Buyer an update to this schedule of expected output on a monthly basis. Further, Seller will inform Buyer on each Friday by 10 A.M. of the expected output for the following seven-day period. In the event Seller must shut-down steam flow, or cannot maintain required pressure, Seller must, except in extreme emergency, provide Buyer with at least twelve-hours notice.

Seller agrees to schedule outages of the facility in consultation with the Buyer. This is in recognition of the fact that it is the intent of the Buyer to take as much steam from the facility as is consistent with the continued maintenance of the reliability and integrity of Buyer's District Steam System. Buyer reserves the right to request an immediate suspension of steam sendout from the facility if system reliability and/or safety so warrants.

#### VI. Steam Purchase

The Buyer shall have the right of first refusal for the purchase of all steam produced by the facility.

Indications, without guarantee, of the quantity of steam Buyer expects to purchase from Seller as well as an estimate of the price to be paid for that steam will be provided upon request.





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# 1. SCHEDULE OF SIGNIFICANT PROCUREMENT AND ENVIRONMENTAL PERMITTING ACTIVITIES

The RFD is amended by inserting the following as subsection 1.6.

## 1.6 SCHEDULE OF PROCUREMENT AND ENVIRONMENTAL PERMITTING ACTIVITIES

The City is proceeding with the procurement process with the objective of executing a Service Agreement with the Developer it selects by December 1, 1983; the City will expect the Developer to complete activities required for financing by June 1984. Listed below is the City's anticipated schedule of major activities related to selection of a Developer, negotiation of a Service Agreement, and environmental permitting consistent with accomplishing the above objective.

The City will make its best efforts to meet the schedule for those activities for which it is responsible. However, the City reserves the right to change the schedule as outlined below. The cooperation of the selected Developer in meeting this schedule is essential. The willingness and capacity of prospective Developers to comply with this schedule will be a factor in the City's selection decision.

### SCHEDULE OF SIGNIFICANT ACTIVITIES

June 30, 1983	City has initiated the environmental review process under the Massachusetts Environmental Protection Act (MEPA) by filing an Environmental Notification Form with the MEPA unit of the Massachusetts Executive Office of Environmental Affairs.
July 1, 1983	City mailed Request for Proposals to underwriters.
July 20, 1983	City selects a senior managing or co-managing underwriter for project financing.





August 1, 1983	City defines with the MEPA unit the scope of the Environmental Impact Report (EIR) and the City begins preparation of the EIR.
August 10, 1983	Prospective Developers submit proposals.
August 31, 1983	City selects a Developer for negotiating Service Agreement.
September 6, 1983	Selected Developer begins preparation of the permit applications and assists the City, as required, in preparation of the EIR.
October 31, 1983	City and Developer conclude negotiations on the Service Agreement. City files the EIR with the State MEPA unit; Developer files the air permit application with DEQE.
December 1, 1983	City Council acts on Service Agreement.
June 1984	MEPA acts on EIR, DEQE acts on air permit. Tax-exempt bonds are sold as required for financing.



## 2. UNDERWRITER SELECTION

The RFD is amended by inserting the following as subsection 1.7.

### 1.7 UNDERWRITER SELECTION

The City is selecting an underwriter in order to facilitate its negotiations with the selected Developer. The City anticipates that the underwriter it selects will serve as senior managing or co-managing underwriter for the sale of any tax-exempt debt required for financing.

The underwriter will advise the City, during negotiations with the Developer, on matters related to financing. The City has issued a Request for Proposals from underwriters and intends to select an underwriter prior to submission of proposals from prospective Developers.

The City recognizes that the Developer, as the owner of the Facility and as the party responsible for structuring the project financing, has an interest in selection of the underwriter. Therefore, if the selected Developer wishes to designate an underwriter to act as senior co-manager with the underwriter designated by the City, such an arrangement would be acceptable to the City.



### 3. SUMMARY OF KEY ENVIRONMENTAL REQUIREMENTS

The RFD is amended by inserting the following at the end of subsection 3.3.1, Summary (of key environmental requirements).

In order to be responsive to environmental questions that may arise during any public hearings related to contract approval or environmental permits, the City is assuming responsibility for the environmental impact review process that is required under MEPA. Therefore, the City has filed an ENF with the State MEPA unit. The City anticipates completing an EIR around October 31, 1983. The cooperation of the Developer selected by the City in assisting the City in preparing the EIR will be essential. Although the City is assuming EIR responsibility, the Developer remains responsible for obtaining all the permits required for construction and operation of the Facility. The City will require the Developer, at the time of selection, to begin preparing the air permit application for submission to DEQE by October 31, 1983. Some of the air permit data required in this application must also be submitted in the EIR; therefore, the City will require the selected Developer to supply these data for purposes of the EIR.

The Technical Proposal submitted by the Proposer will indicate as part of the Proposer's detailed environmental permitting plan, its plan for cooperating with the City in developing information required for the EIR. This plan will be presented in the narrative description on Environmental Permitting, as specified in subsection 3.4.2.1.7.

The RFD is amended by adding the following to the end of subsection 3.4.2.1.7, Environmental Permitting.

The environmental permitting plan will also address the Proposer's plan for cooperating with the City in the preparation of information required for the EIR. Specifically, this portion of the Technical Proposal will identify the individual in the Proposer's organization who will be responsible for managing permitting activities. The organizational and other resources, including outside consultants who will be available to the manager of environmental permitting activities to carry out specific permitting tasks, and the Proposer's plan for utilizing these resources shall be identified and discussed. A statement regarding the willingness and ability of the Proposer (if selected as the Developer to enter into negotiations with the City) to commence preparing permits around September 6, 1983, shall also be included.





#### 4. ESTIMATED ANNUAL THROUGHPUTS, OUTPUTS, AND CONSUMPTIONS

The RFD is amended by inserting the following as subsection 3.4.2.2.12, Estimated Annual Throughputs, Outputs, and Consumptions.

3.4.2.2.12 Estimated Annual Throughputs, Outputs, and Consumptions. The Proposer will complete Forms H and I (attached in subsection 3.4.3) using the design data on mass, energy, and heat balances provided in its Technical Proposal pursuant to subsections 3.4.2.2.2, 3.4.2.2.3, and 3.4.2.2.4; and the facility availability analysis, as presented in Forms E through G of its Technical Proposal.

Estimates of annual waste throughput, as well as residue, any secondary materials, and energy outputs will be stated. Estimates of water usage and sanitary discharge and particulate emissions for the proposed facility will also be provided. Form H is to be used for the annual throughputs and outputs if the facility as proposed will produce electricity only. Form I is to be used if the facility as proposed will cogenerate steam and electricity or if the facility will generate steam only. Those Proposers who elect to sell steam to the Edison District Heating System will complete both Forms H and I. In the latter case, Form H will estimate electricity output assuming no steam is sold to Edison.

The RFD is amended by inserting Forms H and I at the end of subsection 3.4.3, Technical Proposal Forms.



FORM H

ANNUAL THROUGHPUTS, OUTPUTS, AND CONSUMPTIONS  
FOR PRODUCTION OF ELECTRICITY ONLY

\_\_\_\_ TPD \_\_\_\_ HHV

1. Waste:

Waste accepted:	_____	TPY
• City	_____	TPY
• Other	_____	TPY
Waste processed	_____	TPY
Waste to landfill	_____	TPY
Process residue to landfill	_____	TPY
Secondary materials recovered (if any)	_____	TPY

2. Energy Outputs:

Throttle steam	_____	$\times 10^6$	k lbs
Steam used in-plant	_____	$\times 10^6$	k lbs
Steam to condenser	_____	$\times 10^6$	k lbs
Electricity generated (gross)	_____	$\times 10^6$	kWh
Electricity consumed (in-plant)	_____	$\times 10^6$	kWh
Net electricity sold	_____	$\times 10^6$	kWh

3. Water:

Deaerator makeup	_____	$10^6$	gal
Cooling tower makeup	_____	$10^6$	gal
Ash quench makeup	_____	$10^6$	gal
Other process usage	_____	$10^6$	gal
Total City water usage	_____	$10^6$	gal

4. Sanitary Discharge:	_____	$10^6$	gal
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5. Particulate Emissions:	_____	TPY
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## FORM I

ANNUAL THROUGHPUTS, OUTPUTS, AND CONSUMPTIONS  
FOR COGENERATION FACILITY         TPD          HHVSteam to Steam Customer           $10^6$  klbs

## 1. Waste:

Waste accepted:	<u>                    </u>	TPY
• City	<u>                    </u>	TPY
• Other	<u>                    </u>	TPY
Waste processed	<u>                    </u>	TPY
Waste to landfill	<u>                    </u>	TPY
Process residue to landfill	<u>                    </u>	TPY
Secondary materials recovered (if any)	<u>                    </u>	TPY

## 2. Energy Outputs:

Throttle steam	<u>                    </u>	$\times 10^6$ klbs
Steam sold to Edison loop or other steam customer	<u>                    </u>	$\times 10^6$ klbs
Steam used in-plant	<u>                    </u>	$\times 10^6$ klbs
Steam to condenser	<u>                    </u>	$\times 10^6$ klbs
Electricity generated (gross)	<u>                    </u>	$\times 10^6$ kWh
Electricity consumed (in-plant)	<u>                    </u>	$\times 10^6$ kWh
Net electricity sold	<u>                    </u>	$\times 10^6$ kWh

## 3. Water:

Deaerator makeup	<u>                    </u>	$10^6$ gal
Cooling tower makeup	<u>                    </u>	$10^6$ gal
Ash quench makeup	<u>                    </u>	$10^6$ gal
Other process usage	<u>                    </u>	$10^6$ gal
Total City water usage	<u>                    </u>	$10^6$ gal

4. Sanitary Discharge:	<u>                    </u>	$10^6$ gal
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5. Particulate Emissions:	<u>                    </u>	TPY
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## 5. BUDGETARY ESTIMATE OF CAPITAL COSTS

The RFD is amended by inserting the following as subsection 3.4.2.2.13 and inserting Form J in subsection 3.4.3, Technical Proposal Forms.

3.4.2.2.13 Budgetary Capital Cost Estimate. Proposers will provide an estimate of facility capital costs by including a completed Form J (attached in subsection 3.4.3) in their Technical Proposals.



FORM J

BUDGETARY ESTIMATE OF CAPITAL COSTS

	COST (\$000 1983)	PERCENT OF TOTAL
1. Design Engineering and Construction Management	_____	_____
2. Site Preparation:		
• Clearance and demolition	_____	_____
• Other	_____	_____
3. Buildings, Equipment Foundations, Waste Receiving Pit, and Scales	_____	_____
4. Waste Processing Equipment:		
• Front-end fuel preparation (if applicable)	_____	_____
• Furnace/boilers and auxiliaries	_____	_____
5. Air Pollution Control Equipment:		
• Electrostatic precipitators	_____	_____
• Other (if any)	_____	_____
6. Electricity Generation Equipment (if applicable):		
• Turbine-generator and appurtenances	_____	_____
• Cooling tower	_____	_____
• Interconnection with electricity buyer	_____	_____
7. Steam Transmission (if applicable):		
• Steam line	_____	_____
• Interconnection with steam buyer	_____	_____
TOTAL COST	_____	100. _____





6. TERMS AND CONDITIONS APPLICABLE TO THE PURCHASE  
OF STEAM AND ELECTRICITY BY BOSTON EDISON COMPANY

The City is transmitting two documents made available by Boston Edison outlining the respective terms and conditions which would apply to purchase by Edison of both steam for its use in its District Heating System and electricity for use in the grid.

Subsection 2.6.3 of the RFD, Energy Purchase Commitment, is amended by striking the first paragraph in 1.b and substituting the paragraph below.

2.6.3 Energy Purchase Commitment.

1.b If a Proposer is electing to sell steam to Edison for use in its District Heating System, Proposers must complete Form F to provide documentation on their assumptions regarding the term of the steam purchase agreement, the estimated quantity of steam that is expected to be sold annually, the assumed 1983 base steam price per thousand pounds of steam, and the escalation mechanism over the term of the Service Agreement.

Subsection 2.6.8, Business Proposal Forms, is amended by adding Form F.



FORM F

ASSUMPTIONS AND ESTIMATES FOR  
SALE OF STEAM TO EDISON

1. Steam Conditions Used in Pricing:

- Pressure \_\_\_\_\_ psig
- Temperature \_\_\_\_\_ °F

2. Assumed Term of Agreement with Edison: \_\_\_\_\_ years

3. Assumed Steam Price per Thousand Pounds Paid  
by Edison to the Developer (August 1983 \$): \$ \_\_\_\_\_/klbs

4. Estimated Annual Quantity of Steam Sold to  
Edison each Year over the Term of the  
Agreement: \_\_\_\_\_ klbs/year

5. Estimated Annual Quantity of Electricity Sold  
to Edison, Assuming that the Quantity of  
Steam Sold to Edison is as Stated in Item 4  
Above: \_\_\_\_\_ kWh/year

6. Estimated Annual Quantity of Electricity  
Sold to Edison, Assuming Edison Purchases  
no Steam during a Contract Year: \_\_\_\_\_ kWh/year

7. Specify the Assumptions Made Regarding the  
Escalation of Steam and Electricity Prices:

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BOSTON EDISON COMPANY  
CONSIDERATION OF TERMS AND CONDITIONS IN THE PURCHASE  
OF ELECTRIC ENERGY FROM A TRASH TO ENERGY  
FACILITY

June 2, 1983



This document is provided to allow Respondents to the City of Boston request for a proposal (R.F.D.) for development of a trash to energy plant ("Facility") to assess and develop a project proposal for submittal to the City of Boston. The terms and conditions listed below are intended to be descriptive only. Such terms and conditions do not constitute an offer by Boston Edison Company ("Buyer" or "Company") and they are not intended to create any binding obligations. Boston Edison Company's only obligations with respect to the Facility will be those set out in a formal written agreement between the Company and the R.F.D. respondent selected by the City of Boston to develop the Facility ("Seller"), such obligations to take effect only if and when such an agreement is executed.



## I. INTERCONNECTION FACILITIES

The transmission, interconnection and metering facilities (including, without limitation, rights-of-way) necessary to interconnect the Facility with Buyers system for the purpose of making the sales contemplated hereby are herein referred to as the "Interconnection Facilities."

A general description of the Interconnection Facilities, as presently envisioned by the Buyer, will be provided upon request.

### A. Design and Engineering

Buyer and Seller shall mutually consult and cooperate to design, and to develop appropriate engineering specifications for, the Interconnection Facilities in accordance with sound utility practice. However, as to all matters relating to the level of redundancy or reliability of equipment Buyer's determination shall be controlling. As to all other matters concerning the design and engineering of the Interconnection Facilities, including, without limitation, safety and requirements affecting protection and operation of Buyer's system, including Buyer's supplying service to the Facility, Buyer's determination shall be controlling.





B. Title

The Interconnection Facilities shall be owned by, and be subject to the exclusive control of, Buyer.

C. Construction

1. Buyer shall act as constructor, directly and, at Buyer's election, through subcontractors, of the Interconnection Facilities and shall arrange, superintend and effectuate the construction and installation of the Interconnection Facilities, in accordance with the engineering specifications determined as provided in paragraph (A) of this Section 1.
2. On or before the first business day of each calendar month until completion of the construction of the Interconnection Facilities, Buyer shall inform Seller of the estimated amount of out-of-pocket payments to be paid, and services and materials to be provided by Buyer, in respect of the cost of the Interconnection Facilities during the following calendar month. On or before the first business day of such following calendar month, Seller shall deposit, in a bank account established by Buyer for the purpose, in a bank having a banking office in Boston and reasonably acceptable to Seller, collected and immediately transferrable funds in the amount of such estimated costs. Immediately upon providing any such services or materials, Buyer may reimburse itself from such account, and Buyer may make all such out-of-



pocket disbursements from such account or, at its option, Buyer may make such disbursements directly and reimburse itself from such account. Concurrently with any withdrawal from such account, Buyer shall invoice Seller for the services, materials, or payments to which such withdrawal relates, such invoices to specify, in reasonable detail, the services, materials, or payments covered thereby. Buyer shall not be obligated to make any out-of-pocket payments, or to provide services or materials, in excess of the current balance of such account. Buyer shall promptly notify Seller whenever it shall appear that such account is likely to be exhausted prior to the end of a calendar month, so that Seller may deposit additional funds in such account. Any balance remaining in such account upon completion of the Interconnection Facilities shall be returned to Seller.

3. During construction of the Interconnection Facilities Seller shall provide or arrange for, at Seller's expense, third party liability insurance, in limits of not less than \$500,000 per occurrence for both bodily injury (including death) and property damage, insuring Buyer in its capacity as owner and constructor of the Interconnection Facilities.
4. Seller shall reimburse Buyer for the cost of the Interconnection Facilities. The cost of the Interconnection Facilities shall include (a) all amounts which, under the uniform system of accounts of the Massachusetts Department of Public Utilities (DPU), and under all the facts and circumstances, would be



properly includable in such cost if the Interconnection Facilities were being installed and constructed by Buyer at its own expense and for its own account, and (b), without duplication and without limiting the generality of the preceding clause (a), all items to be described by Buyer.

5. Any payment by Seller shall be increased by an amount sufficient (after deduction of any taxes incurred by Buyer in respect of such amount) to pay any taxes, excluding any tax upon or measured by Buyer's net income, but including any tax upon or measured by Buyer's gross receipts or gross income, incurred by Buyer in respect of such payment.
6. Buyer shall make available to Seller, its agents, representatives and employees, at all reasonable times, on reasonable prior notice by Seller and at Buyer's offices, such books and records of Buyer as are reasonably necessary to verify any or all items of cost for which Seller is required to pay Buyer.

D. Warranty

It is understood that the only warranties contemplated with respect to the Interconnection Facilities are those which may be made by third parties supplying materials or services.





### E. Improvements

If Buyer shall determine at any time that any addition, modification or improvement to the Interconnection Facilities is necessary for safe and lawful operation Buyer shall so inform Seller and shall install and construct such addition, modification or improvement, upon the same terms and conditions provided for the installation and construction of the Interconnection Facilities, including the funding provisions set forth in Section 1(C) (2). If Seller declines to provide the funds required for such purpose, Buyer may shut down the Interconnection Facilities, if necessary, in Buyer's sole judgment exercised in good faith, to avoid unsafe or unlawful operation.

## II. Operation and Maintenance

### A. Scope

Buyer shall have exclusive control over the Interconnection Facilities and shall, directly and, at Buyer's election, through subcontractors, operate, maintain, repair or replace the Interconnection Facilities in accordance with the requirements of law and sound utility practice having due regard for the dependency of the Facility on the Interconnection Facilities and for the interests of Buyer's other customers. Buyer shall schedule normal outages of the Interconnection Facilities required for such purposes in accordance with such standard and, to the extent reasonably practicable, with schedules prearranged with Seller. To the extent that Buyer shall elect to contract for



materials and services to be provided in connection with operation, maintenance, repair and replacement of the Interconnection Facilities, Buyer will seek in good faith to obtain such warranties as are customarily obtained by Buyer from the suppliers of such materials and services. Buyer shall have no liability, however, for any absence or deficiency of any such warranty.

B. Payment or Reimbursement

Seller shall reimburse Buyer for the cost of operation, maintenance, repair or replacement of the Interconnection Facilities. Such cost shall include (a) all amounts which, under the uniform system of accounts of the DPU, and under all the facts and circumstances, would be properly includable in such cost if the Interconnection Facilities were being operated and maintained by Buyer at its own expense and for its own account, and (b), without duplication and without limiting the generality of the preceding clause (a), all property taxes on the Interconnection Facilities, expenses incurred in calculating payments to be made pursuant to Section 4, and items of a nature to be determined by the Buyer. Any payment by Seller pursuant to this Section 2 shall be increased by an amount sufficient (after deduction of any taxes incurred by Buyer in respect of such amount) to pay any taxes, excluding any tax upon or measured by Buyer's net income, but including any tax upon or measured by Buyer's gross receipts or gross income, incurred by Buyer in respect of such payment. Buyer shall make available to Seller, its agents, representatives and employees, at all reasonable times, on reasonable prior notice by Seller and at





Buyer's offices, such books and records of Buyer as are reasonably necessary to verify any or all items of cost for which Seller is required to pay Buyer under this Section 2(B).

C. Manner of Payment

Buyer shall render to Seller monthly, or, at Buyer's election, less frequently, bills for the cost of operation, maintenance, repair and replacement, and Seller shall pay Buyer the amount of such bills within ten days after presentation. As security for the payment of such bills, Buyer may, in its discretion, require a deposit from Seller of an amount equal to two times the amount of Buyer's reasonable estimate of Seller's average monthly bill for operation, maintenance, repair and replacement for a calendar year.

E. Insurance

After construction of the Interconnection Facilities and during the remainder of the term of any Agreement:

1. Seller shall provide or arrange for, at Seller's expense, third party liability insurance, in limits of not less than \$500,000 per occurrence for both bodily injury (including death) and property damage, insuring Buyer in the ownership, operation, maintenance, repair and replacement of the Interconnection Facilities.





### III. Service to Seller

During construction of the Facility and the Interconnection Facilities, Buyer will supply, and Seller will accept and pay for, all electric energy requested by Seller at the Facility site, at Buyer's applicable tariff rates and terms. During startup and following commercial operation of the Facility, Buyer will also supply, and Seller will accept and pay for, all electric energy requested by Seller at the Facility site (to the extent that the Facility does not generate sufficient electric energy to satisfy such requirements), at Buyer's applicable tariff rates and terms, it being understood that such tariff rates and terms will incorporate, if appropriate, an allowance for the fact that Seller will have paid for the cost of the Interconnection Facilities, to the extent that the Interconnection Facilities are used to deliver the service received by Seller. If the Interconnection Facilities are used by the Buyer to supply electric energy to, or to receive electric energy from, any third party, Seller may apply to Buyer for such relief as Seller may be entitled to under the circumstances, with respect to any equitable sharing by such third party of the capital and operating costs of the Interconnection Facilities.

### IV. Purchases from Seller

#### A. Quantity and Price

The quantity of electric energy to be purchased by Buyer, and the price to be paid to Seller for such energy, shall be as follows:



(1) Quantity

The Buyer shall have the right of first refusal in the purchase of all electric energy (net of seller's Facility operational use) produced by the Facility.

The Buyer is prepared to enter into a long term arrangement to purchase all electric energy produced by the Facility.

(2) Price

In recognition of the long-term nature of the proposed contract the Buyer is prepared to provide, the Buyer will pay, on a take and pay basis, a price equal to 90 percent of the Buyer's avoided energy cost, peak and off-peak. (Based upon current estimates, Buyer expects a zero avoided cost (minimum generation) condition to exist for approximately 200 hours per year beginning in 1986.)

On-peak period of the Buyer is:

8 A.M. to 9 P.M. Eastern Standard Time

9 A.M. to 10 P.M. Eastern Day Light Savings Time

All other hours are off-peak. The Buyer files forecasted avoided cost rates quarterly with the Massachusetts Department of Public Utilities.



B. Payment

Buyer shall determine, promptly after each calendar month, the aggregate amount due to Seller pursuant to Section 4(A) in respect of purchases during such month. Such amount shall be due and payable on the twentieth day of the month following the month of such purchases; provided, however, that Buyer may, at its election, set off and deduct from such amount any amount which shall have been due and payable from Seller to Buyer, and shall have remained unpaid, for ten days. Buyer shall make a payment on the due date equal to 90 percent of the Buyer's avoided cost rates times the amount purchased. Any necessary adjustment of such payment shall be paid or credited, without interest, with the payment for the following period.

C. Audit Rights

Buyer shall make available to Seller, its agents, representatives and employees, at all reasonable times, on reasonable prior notice by Seller and at Buyer's offices, such books and records of Buyer (including, without limitation, computer programs, input and output data and printouts of information stored in machine form) as are reasonably necessary for the purpose of verifying amounts due pursuant to Section 4(B).





D. Certain Waivers

Each of Seller and Buyer hereby waives any right it might otherwise have to elect to apply a general tariff approved by the DPU in lieu of the price and quantity provisions established.

V. Operating Procedures

A. Facility Operation

At all times when the Facility is interconnected with Buyer's system, Seller shall use its best efforts to operate the Facility in accordance with the normal rules and procedures that Buyer follows in the operation of its own system, to the extent compliance with such rules and procedures is determined in good faith by Buyer to be necessary for the protection or safe operation of Buyer's system, including the Interconnection Facilities. If at any time Seller does not operate the Facility in accordance with such rules and procedures, Buyer shall be entitled, upon such prior notice to Seller as is consistent with the protection and safe operation of Buyer's system, including the Interconnection Facilities, to disconnect the Facility from Buyer's system until such rules or procedures are complied with. Buyer shall consult with Seller in developing such rules and procedures that may affect operation of the Facility; provided, however, that Buyer shall make the final determination of such rules and procedures. Representatives of Buyer and Seller shall formulate guidelines to be followed by Seller in planning the operating and maintenance schedules for the



Facility. Each week Seller shall furnish Buyer with schedules showing, on an hour-by-hour basis, the estimated amount of electric energy to be generated by the Facility during the following week. Seller shall update such schedules on a daily basis in advance of the following day's operation.

C. Access

To the extent that any Interconnection Facilities may be located at the Facility site, representatives of Buyer shall have the right of free and unobstructed access to such Interconnection Facilities, upon reasonable prior notice to Seller, to inspect, maintain and test such Facilities. To provide safe working conditions, Seller shall maintain a device to lock its disconnecting equipment, and such device shall be accessible to Buyer's representatives. Upon reasonable prior notice to Seller, and for purposes of inspection, maintenance, switching or testing, Buyer's representatives shall have the right to direct the operation by Seller of all equipment associated with the Interconnection Facilities up to and including the breaker or breakers and disconnecting equipment at the Facility site. All such inspection, maintenance and testing contemplated by this Section 5(C) shall be conducted on schedules prearranged with Seller to the extent reasonably practicable and with due regard for the dependency of the Facility on the Interconnection Facilities. During any such inspection, maintenance, switching or testing, Buyer's operating rules and procedures shall be followed by all parties.



D. Metering

Buyer shall test the meters at regular intervals and at other times upon Seller's request, and will notify Seller when such tests are to be made in order that Seller may have a representative present during the test. If a meter is found to be more than two percent in error when tested, appropriate billing adjustments shall be made on account of erroneous readings since the last meter test. Location of meters will be determined by Buyer.

VI. Limitation of LiabilityA. General

Neither Buyer nor Seller shall have any liability to the other, whether based upon warranty, contract, tort (including, without limitation, negligence), for any death or injury to person or damage to property or for any incidental, special, or consequential damages (including, but not limited to, loss of use, expenses involving costs of capital, loss of profits or revenues, and the cost of purchased or replacement power).

B. Assumption of Risk

Each of Buyer and Seller hereby assumes the risks arising out of the performance of this Agreement, whether they arise from acts or omissions (whether negligent or not) of Buyer, of Seller, or of third





persons, or from any other cause, of loss or damage to, as to Buyer, its system, and as to Seller, the Facility and the Interconnection Facilities.

C. Affiliates

The provisions of this Section VI shall also be for the benefit of the respective trustees, directors, officers, agents, employees, parents, subsidiaries and affiliates of Buyer and Seller.

VII Term

A. Duration

The term of any Agreement shall end on the earlier of (1) of the thirtieth anniversary of the date of any Agreement, of (2) the twentieth anniversary of the date the Facility commences commercial operation (the earlier of such anniversary dates being herein called the "Termination Date"). An Agreement may be extended after the Termination Date upon the mutual agreement of the parties. For purposes of this Section VII, "commercial operation" shall mean the first day immediately following a period of three consecutive calendar months during each of which the Facility shall have produced and delivered to a delivery point to be specified in an amount of energy to be determined.



VIII Regulatory and Other Approvals

A. DPU Approval

Buyer and Seller shall submit any Agreement to the DPU for its approval. Until either (1) DPU approval shall be granted, or (2) the time within which the DPU may disapprove an Agreement shall have lapsed, neither Buyer nor Seller would have any obligation. Buyer reserves the right to renegotiate or terminate an Agreement, without further obligation, if the DPU imposes any condition upon such approval or, substantially concurrently, takes any other action with respect to any Agreement between Buyer and Seller which is unacceptable to Buyer.

B. Other Regulatory Approvals

Buyer and Seller shall each proceed expeditiously to obtain all governmental approvals, certificates, permits, covenants, licenses, authorizations, variances and other actions ("Permissions") required by it to perform its obligations, and such obligations are expressly conditioned upon receipt of such Permissions.

C. Cooperation

Buyer will enter into an Agreement in reliance upon Seller's assurance that Buyer will receive all reasonable cooperation and assistance of the City of Boston and of Seller, in connection with obtaining the



Permissions, easements and rights-of-way required by Buyer to perform its obligations and such obligations are conditioned upon receipt of such cooperation and assistance.

#### VIII. Force Majeure

Buyer shall not be liable for failure to perform or delay in performance resulting from any cause which is beyond Buyer's reasonable control. Examples of such causes include, but are not limited to, an act of God, act of civil or military authority, act (including delay, failure, to act or priority) of any governmental authority, insurrection or riot, sabotage, fire, flood, strike, work stoppage or other labor difficulty, embargo, fuel or energy shortage, wreck, major equipment breakdown or delay in transportation; provided, however, that settlement of Buyer's labor difficulties shall be entirely at Buyer's discretion.





# Boston

April 25, 1983

To Recipients of the City of Boston  
Request for Developers of a Waste-  
to-Energy Project:

The submission date for proposals in response to this Request for Developers (RFD) is July 25, 1983. Thirty copies of the proposal must be submitted to:

Mr. Joseph F. Casazza  
Commissioner of Public Works  
City of Boston  
City Hall Room 714  
Boston, Massachusetts 02201

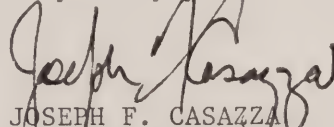
Proposals received after 4:00 P.M., Boston time, will not be considered by the City. The only acceptable evidence of receipt is a signed receipt form from the City.

Any questions regarding this RFD must be submitted in writing by close of business May 9, 1983, to Mr. Casazza at the above address. All recipients of this RFD will receive written responses to any questions submitted.

There will be a Pre-Bidders Conference on Monday, May 16, 1983 commencing at 11:00 A.M. in the City Hall Gallery, South Side, New City Hall, Dock Square, Boston.

There will be no modifications of the terms and conditions contained in this RFD, unless recipients of this RFD are informed otherwise by the City in writing.

Very truly yours,



JOSEPH F. CASAZZA  
Commissioner of Public Works



Kevin H. White, Mayor / DEPARTMENT OF PUBLIC WORKS / Boston City Hall / City Hall Plaza 02201  
Joseph F. Casazza, Commissioner, 725-4900  
Robert P. Mehegan, Executive Secretary 725-4901



















